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ABSTRACT

This curriculum guide, designed for use with secondary migrant students, presents mathematics activities in the areas of whole numbers, fractions, decimals, percent, measurement, geometry, probability and statistics, and sets. Within the categories of whole numbers, fractions, and decimals are activities using addition, subtraction, multiplication, division, applications, equivalent fractions, LCM and GCF, and conversions. Skills in the percent category involve conversions, calculations, and applications. Within the category of measurement are skills in linear measurement, area, volume, time, temperature, weight (mass), capacity, and money. Within the category of sets are skills involving single sets, subsets, set relations, set operations, and Venn diagrams. Basic graphs are explained in the section on probability and statistics, and basics are presented in the Geometry category. The skills are correlated with the numerical coding of the Math Skills List published by the Migrant Student Record Transfer System. Each activity page includes the skill name and number, the objective, directions, and follow-up activities. Pages are illustrated, with most suitable for reproduction for classroom use. Many of the activities are presented in a game format. (KS)

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# Color Your Classroom V

MIGRANT EDUCATION

RC018701



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# Color Your Classroom V

## *A Math Guide on the Secondary Level*

**Color Your Classroom**
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Richard Boyd, State Superintendent
Sam B. Parker, Division Director

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Ray Strebeck, Superintendent
Ray Bishop, Asst. Superintendent
Norris Williams, Project Supervisor
Dorothy Regel, Project Coordinator
Jeanette Guel, Curriculum Guide Specialist and Illustrator

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and the Migrant Teachers in the State of Mississippi

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Mississippi Materials and Resource Center
P. O. Box 220
Gulfport, Mississippi
39502-0220
601-896-1211/1216

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The Secondary Math Curriculum Guide was developed in correlation with the numerical coding of the Math Skills List published by the Migrant Student Record Transfer System.

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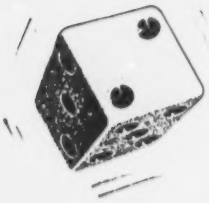
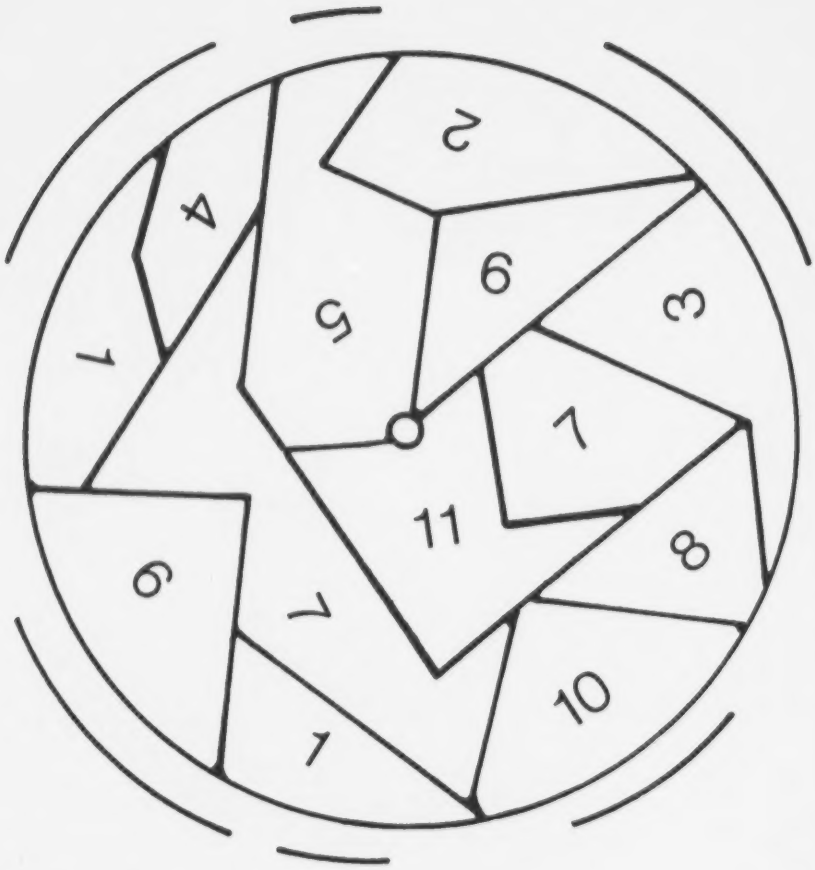




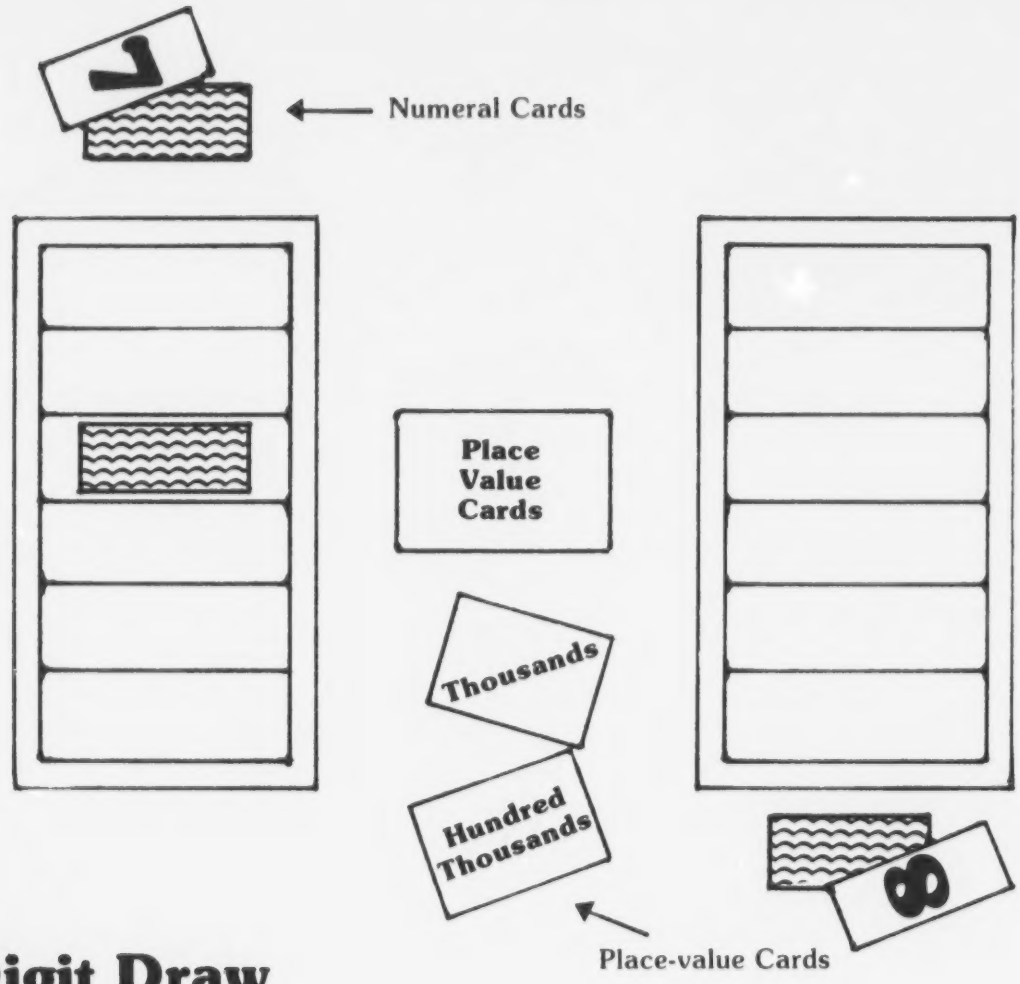

# Oddball

**Skill #2110**
**Whole Numbers—Basic Characteristics**

**Objective:**
The student will identify numbers as even or odd.

**Directions:**
In alternating turns, each student spins the "oddball" and tosses the die onto it. He calculates his score by adding the number where the die lands to the number rolled. If the calculated score is an odd number, the player marks it on his score sheet as a negative number. If it is an even number, it is placed on the score sheet as a positive number. The first player to reach a score of 51 is the winner.

**Follow-up Activities:**
1. Have the students play the activity in the same manner, except that each player will calculate his score by subtracting the number on the die from the number on the board. Then he must identify it as positive or negative and even or odd.
2. Have the students use an unmarked playing piece and tally the number of times they land on odd numbers and the number of times they land on even numbers.

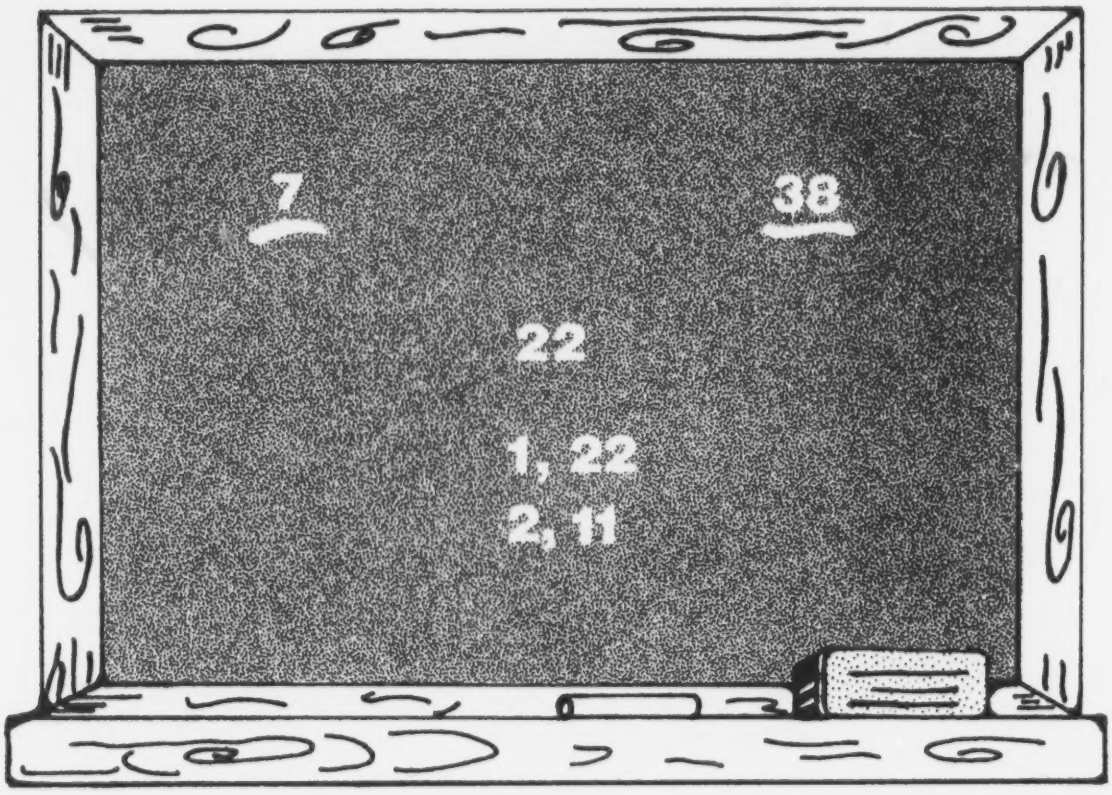



# Six-Digit Draw

**Skill #2110**
**Whole Numbers—Basic Characteristics**

**Objective:**
The student will name and associate the place value of each digit in a six-digit numeral.

**Directions:**
A set of 20 numeral cards is divided between two players and placed face down in front of them. The set of place-value cards is placed face down between the two players. To begin the game, one player turns over the top place-value card and reads it aloud. Each player looks at his top numeral card and must decide whether to place it face down in the correct position on his playing card or discard it. Each player may go through his ten cards only once, and a card may not be moved once it has been played. When both players have filled their cards, numeral cards are turned face up and the winner is the player whose card shows the higher six-digit numeral.

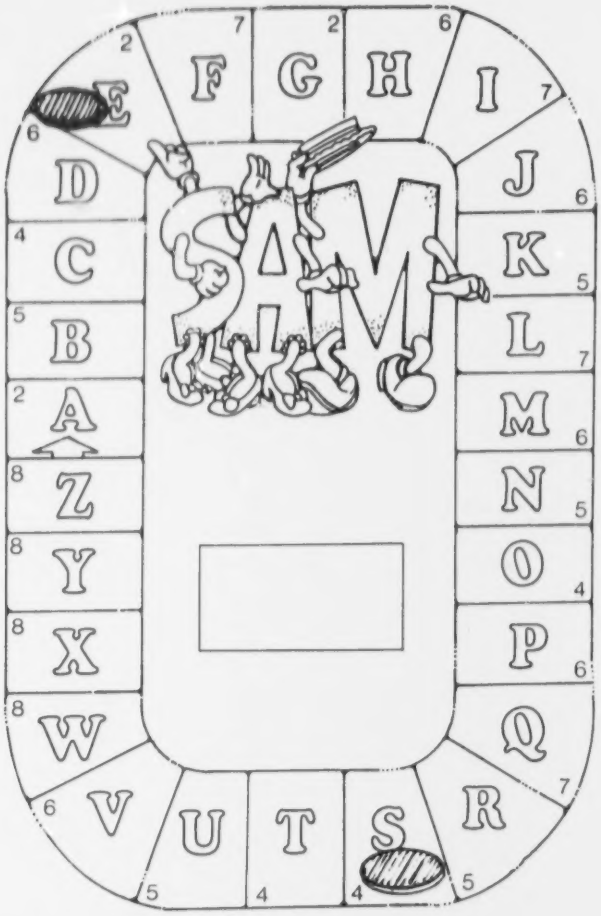


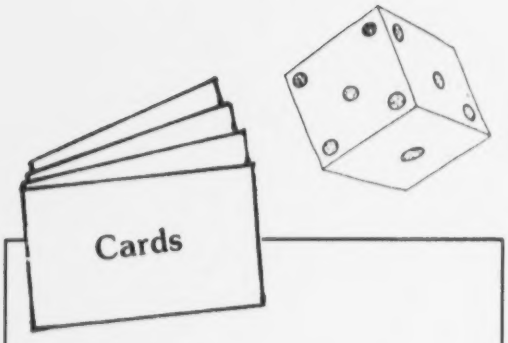

# Non Prime Time

**Skill #2110**
**Whole Numbers—Basic Characteristics**

**Objective:**
The student will identify composite numbers and their factors.

**Directions:**
Write two numbers on the "chalkboard." Write a composite number that is between the two given numbers. Divide students into two teams, A and B. A player from team A may earn one point for each set of factors he can give for that number and then may earn two points for writing another composite number for team B. An incorrect response results in termination of that turn. If a prime number is given, the next player may choose his own composite number but does not receive points for it. Play continues until all possible numbers have been used or until time is called.




| | |
|---|---|
| Boy's name | Dog |
| Girl's Name | Country |
| Vegetable | Flower |
| Continent | Fruit |
| Sport | State |
| Color | Ocean |
| Tree | City |
| Bird | 1-20 Number |
| Animal | Fish |
| Meat | |
| Mineral | |

# The Name Game

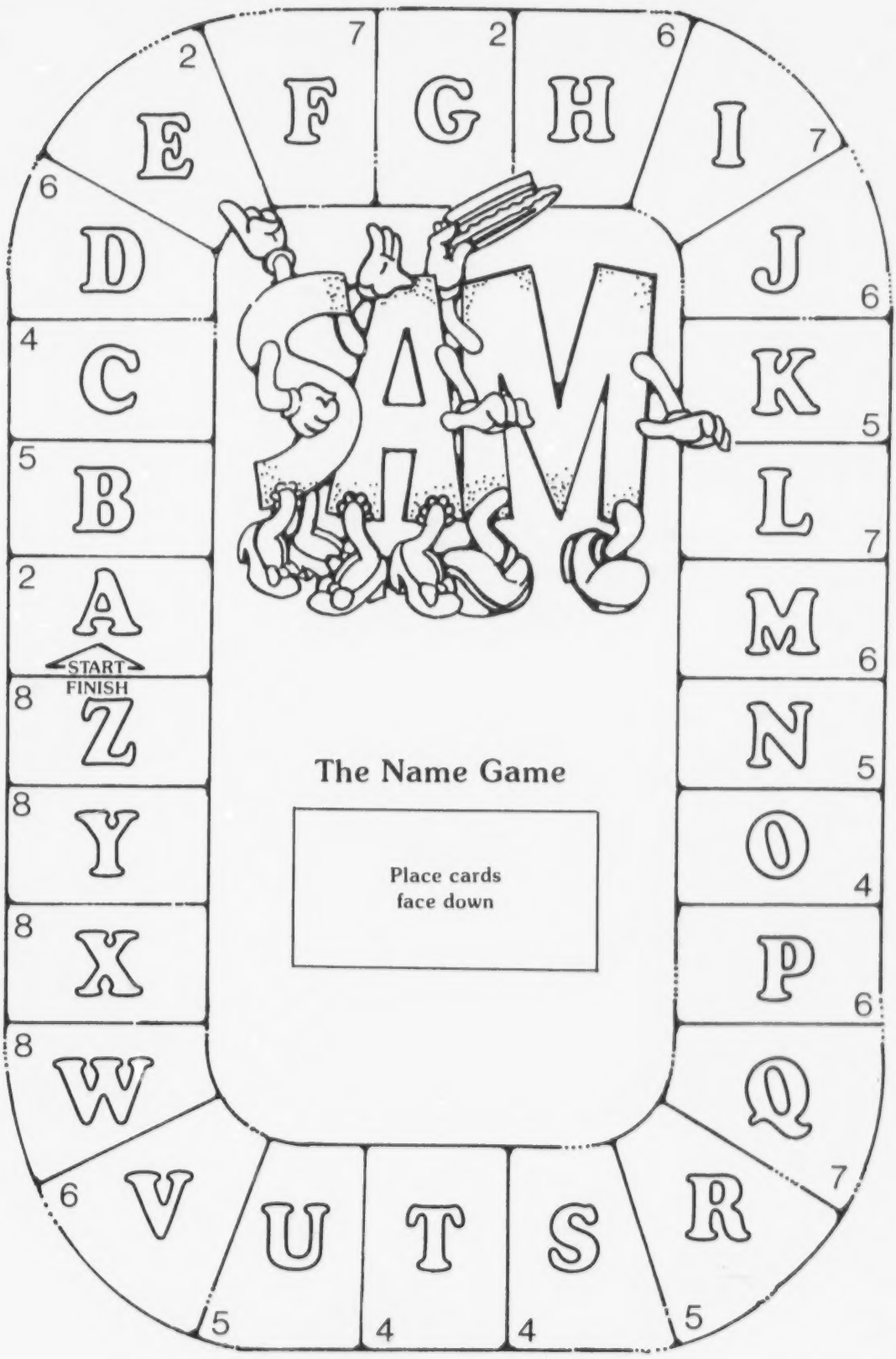
**Skill #2120**
**Whole Numbers—Addition**

An example: If a student lands on "S" and draws the card "boy's name," he may use . . 4 2 6
SAM 4 + 2 + 6 = 12

**Objective:**
The student will identify the sum.

**Directions:**
Prepare a set of cards using the categories given above. In alternating turns, each student rolls the die and moves the number of spaces indicated. He then draws a card and turns it face up. Each player must write down a noun that fits the category written on the card and begins with the letter the player has landed on. Have each player find the value of his noun by adding the numbers of the playing board assigned to each letter he used. An example is given above. The student whose word has the highest value wins the card. Play continues in the same manner until all players have reached "finish." The winner is the player with the most cards at the end of the game.

**A Follow-up Activity:**
Have the numerals on the spaces represent cents and have the student name a word that totals a given value, such as 58 cents, 11 cents, 8 cents.


A
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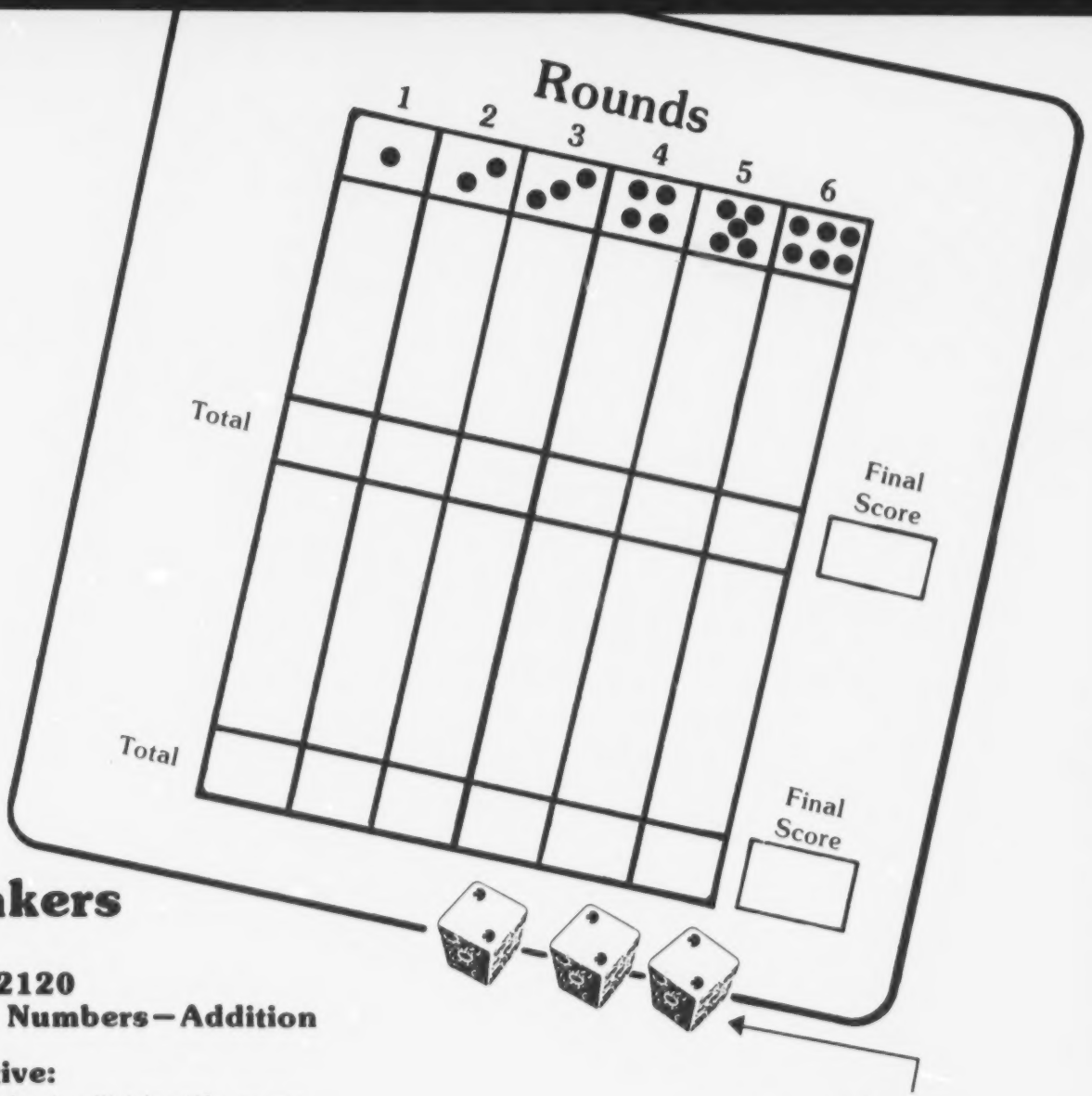
X
Y
Z
START
FINISH
The Name Game
Place cards
face down




# Bonkers

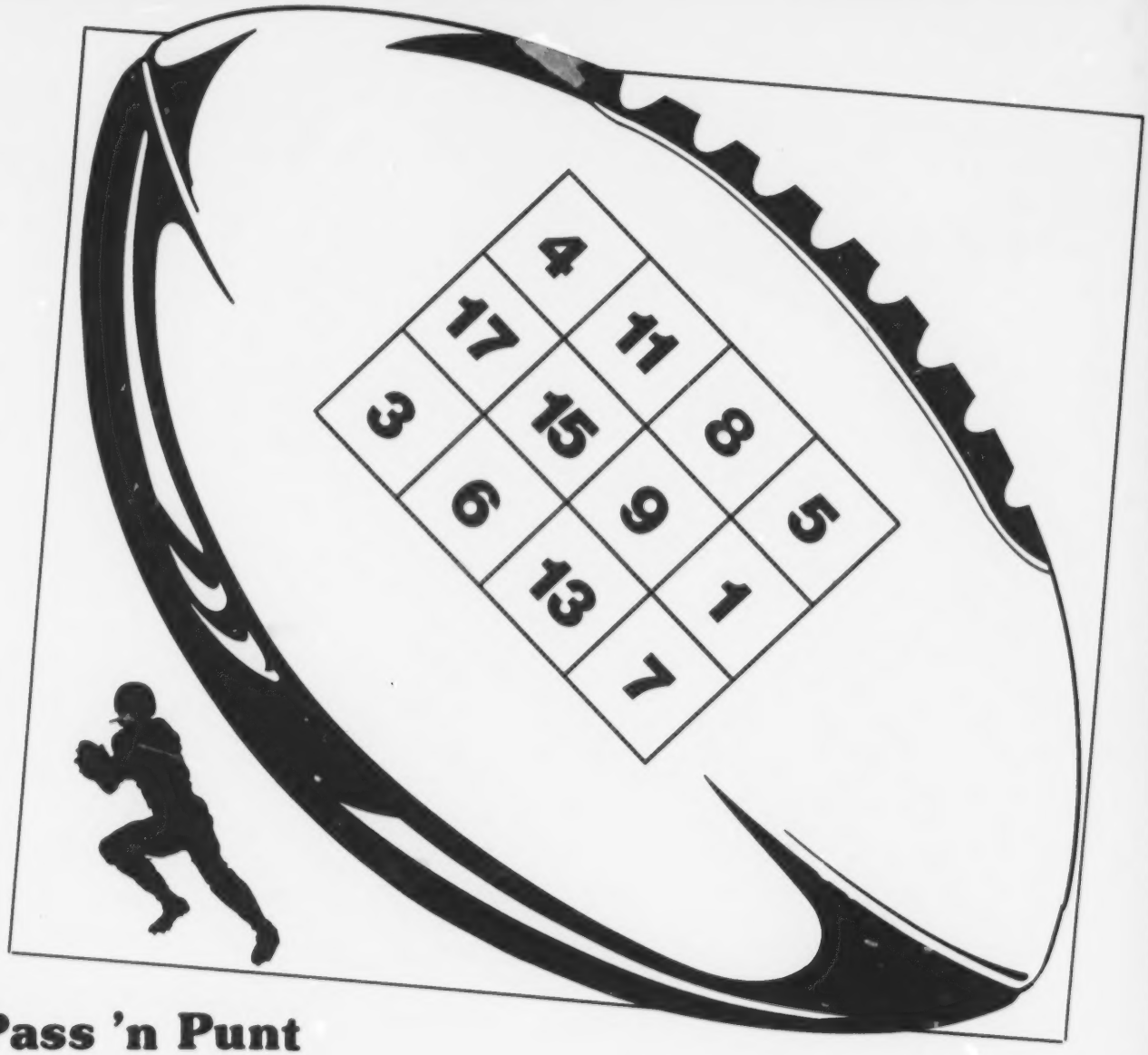
**Skill #2120**
**Whole Numbers—Addition**

**Objective:**
The student will identify sums.

A bonkers for two's.

**Directions:**
This activity requires four players with two players as partners. Six rounds constitute a game. One player on the first team begins round 1 by rolling three dice with the object being to roll "one's." For each "one" rolled, a point is scored. If three "one's" are rolled on a throw of dice, that player has a "Bonkers" and scores ten points. If any three of a kind are rolled, five points are scored. If the player fails to roll a "one," play alternates to the other team. The first team to reach a total of 23 points is the winner of that round. The same procedure continues for round 2 with the players trying to roll for "two's," and so forth.

**A Follow-up Activity:**
Write five numerals on the board, such as, 19, 23, 75, 89, 100. Have two students come to the front of the room and stand by the board. Give them a problem orally, such as, 27 + 39 or 38 − 14. The students race to see who can first indicate the numeral on the board which is closest to the answer.

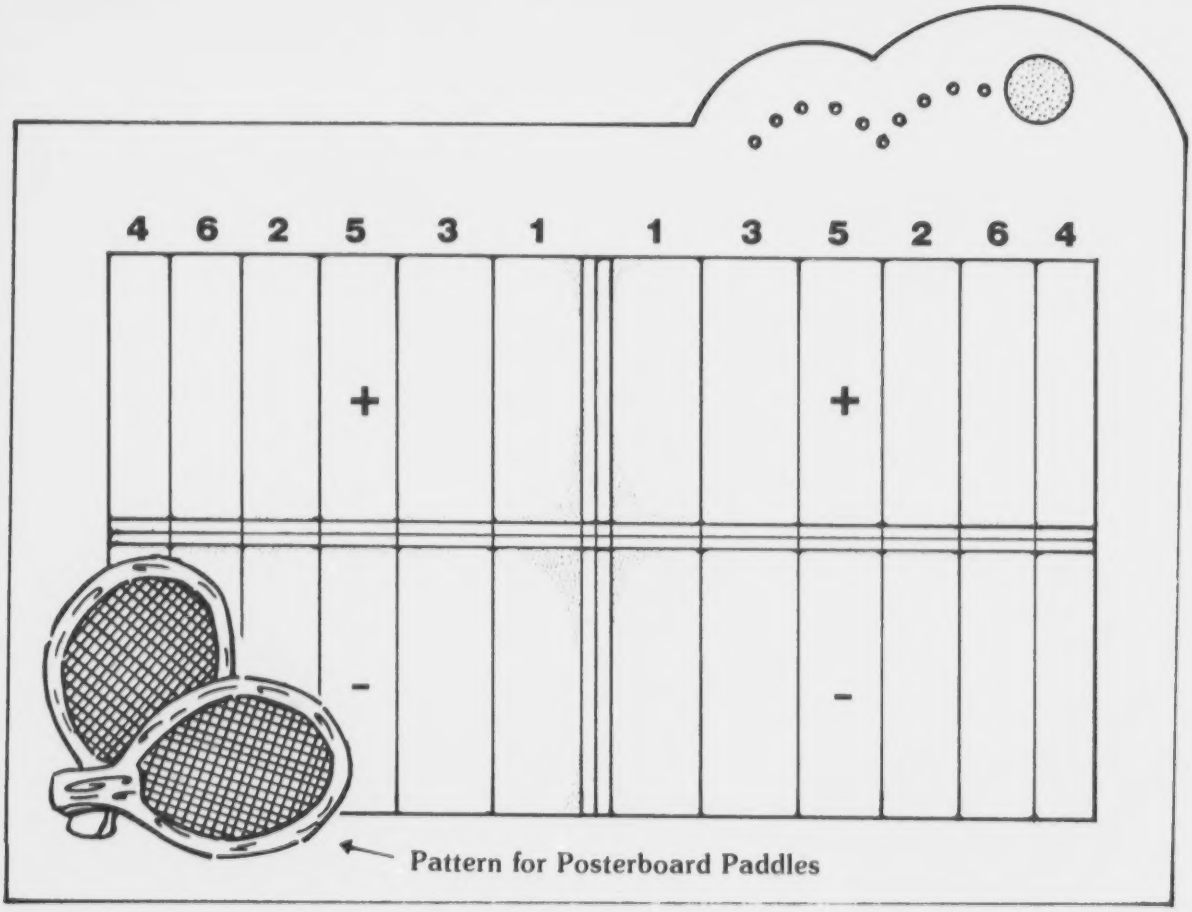



# Pass 'n Punt

**Skill #2120**
**Whole Numbers—Addition**

**Objective:**
The student will identify the sum.

**Directions:**
Have the student place the playing piece on the football player. In alternating turns, each student gives the playing piece a short, quick push. The player receives points from adding the numeral spaces that the football is touching. If his punt is out of bounds, the player does not receive any points for that turn. The object of the game is to score 100 points exactly, and the points are accumulated until a player attains that score. At any time during the game, the player may pass up his points so that his score does not exceed 100.




# "Sum" Ping Pong With A "Difference"

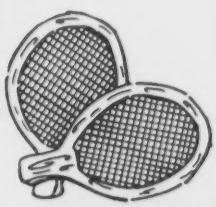
**Skills #2120, #2130**
**Whole Numbers—Addition, Subtraction**

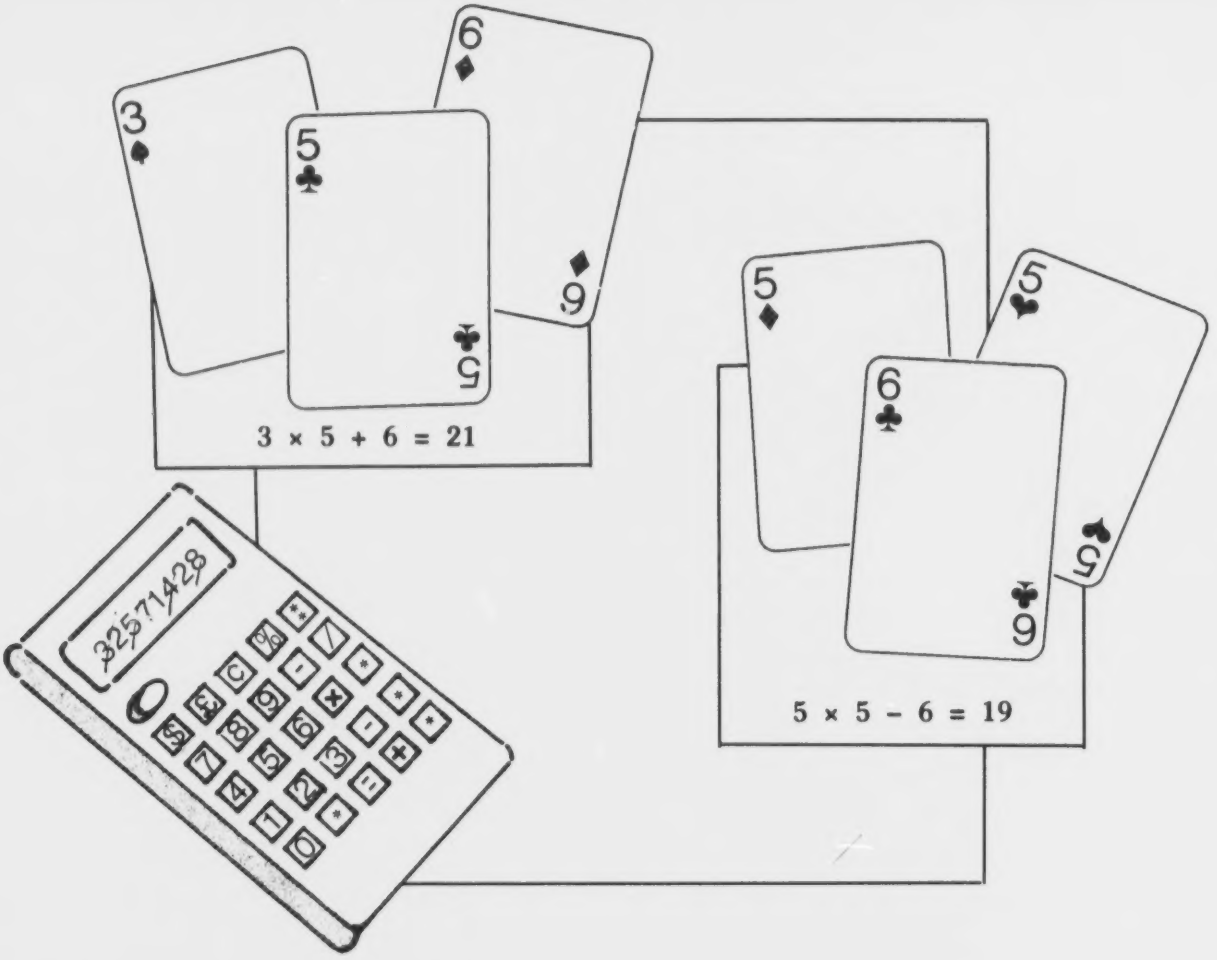
**Objective:**
The student will identify the sum or difference.

**Directions:**
This activity is played with a "ball" and two "paddles" cut from poster board. In alternating turns, each player uses a paddle to hit the ball to the opposite half of the playing board. In each turn he is awarded the number of points assigned to the space on which he lands. He must add to or subtract from his score depending on the sign in the area his playing piece occupies. If his ping-pong ball touches more than one space, he must choose the one he wishes to use. The winner is the first player to reach a score of exactly 21 points.

# "Sum" Ping Pong With A "Difference"

| 4 | 6 | 2 | 5 | 3 | 1 | 1 | 3 | 5 | 2 | 6 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | + | | | | | - | | | |





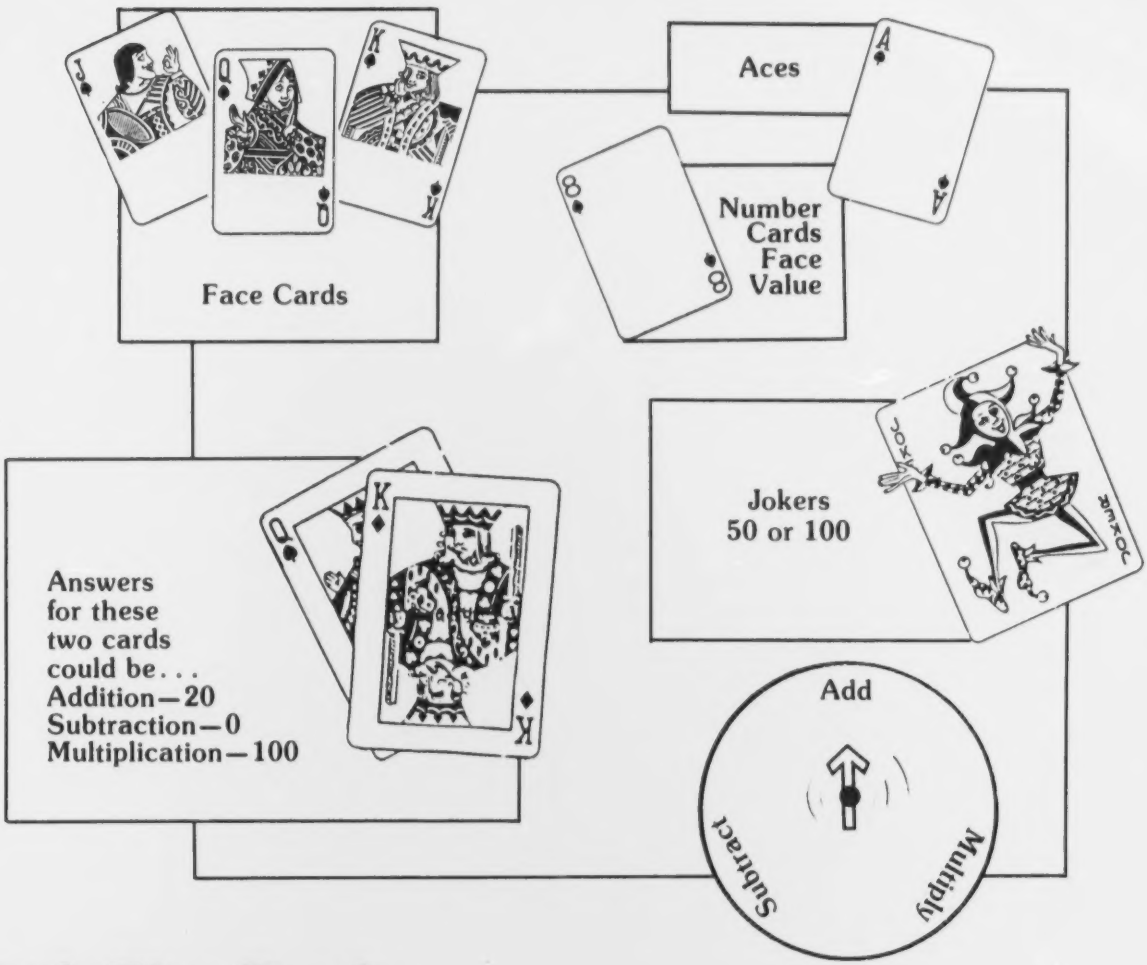

# Calculator Blackjack

**Skills #2120, # 2130, #2140**
**Whole Numbers—Addition, Subtraction, Multiplication**

**Objective:**
The student will identify the sum, the difference and the product.

**Directions:**
Provide students with a deck of cards from which all face cards have been removed. Three cards are dealt to each player. Players perform math operations of addition, multiplication and subtraction in any combination and in any order. Two examples are shown above. Answers may be checked with a calculator. The winner of each hand is the player who comes closest to "21" without going over.

**A Follow-up Activity:**
After students have had practice with the calculator, have them play blackjack without it.



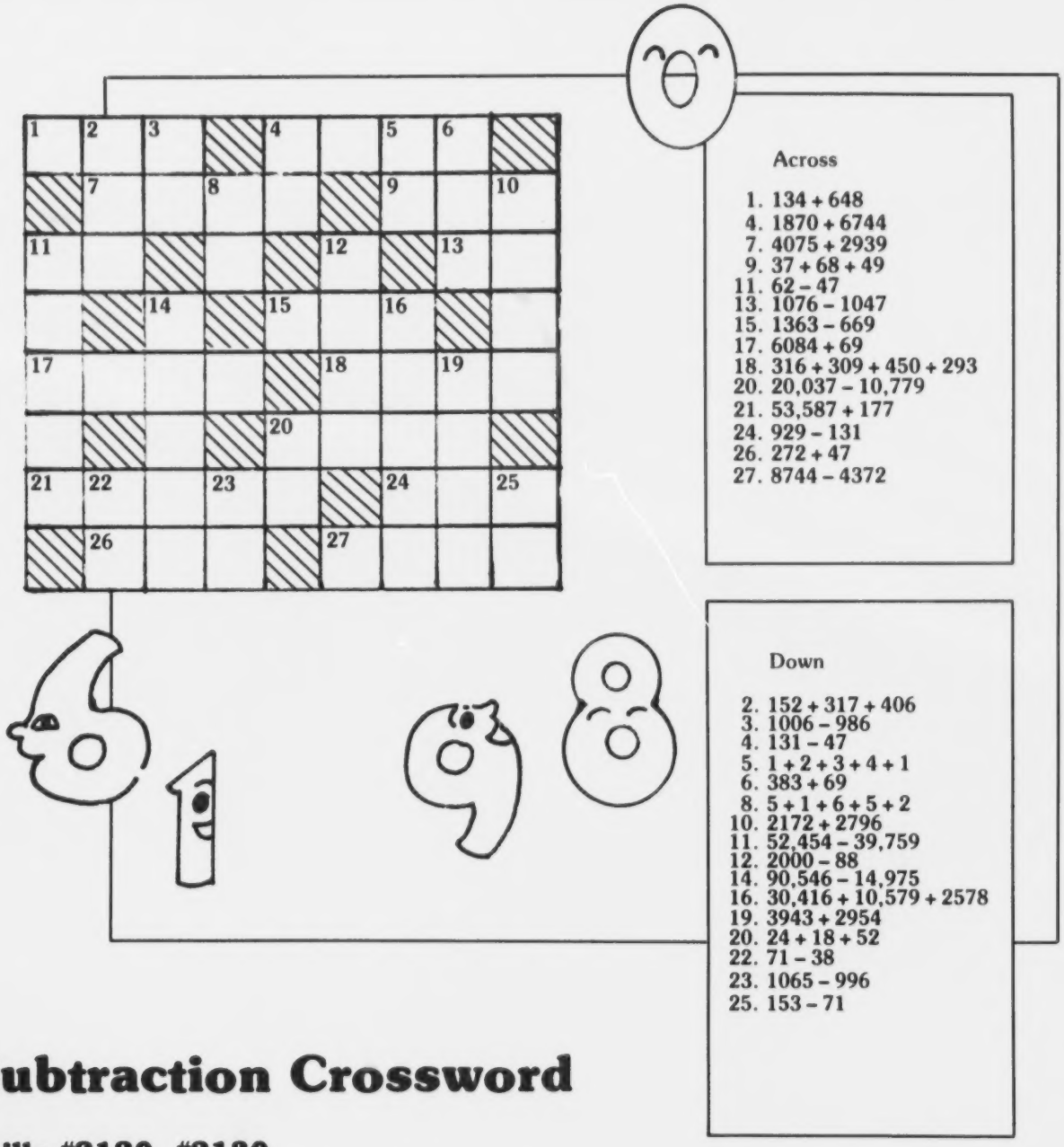

# Stack The Deck In Your Favor

**Skills #2120, #2130, #2140**
**Whole Numbers—Addition, Subtraction, Multiplication**

**Objective:**
The student will identify the sum, the difference or the product.

**Directions:**
Provide students with a regular deck of playing cards. Card values are as shown above. In each turn, each player is dealt two cards face down. The dealer spins the arrow and gives the signal to start. Players turn their cards over and mentally perform the operation shown on the spinner using the numbers represented by their cards. The first player to give a correct answer wins a point and becomes the dealer of the next hand.

**A Follow-up Activity:**
Vary this by having a deck of cards for each player or by having the lowest or highest correct answer win.



Across

1. 134 + 648
4. 1870 + 6744
7. 4075 + 2939
9. 37 + 68 + 49
11. 62 – 47
13. 1076 – 1047
15. 1363 – 669
17. 6084 + 69
18. 316 + 309 + 450 + 293
20. 20,037 – 10,779
21. 53,587 + 177
24. 929 – 131
26. 272 + 47
27. 8744 – 4372

Down

2. 152 + 317 + 406
3. 1006 – 986
4. 131 – 47
5. 1 + 2 + 3 + 4 + 1
6. 383 + 69
8. 5 + 1 + 6 + 5 + 2
10. 2172 + 2796
11. 52,454 – 39,759
12. 2000 – 88
14. 90,546 – 14,975
16. 30,416 + 10,579 + 2578
19. 3943 + 2954
20. 24 + 18 + 52
22. 71 – 38
23. 1065 – 996
25. 153 – 71

# Subtraction Crossword

**Skills #2120, #2130**
**Whole Numbers—Addition, Subtraction**

**Objective:**
The student will compute the difference and find the sum.

**Directions:**
Have the student work the math problems and write the answers in the crossword puzzle.

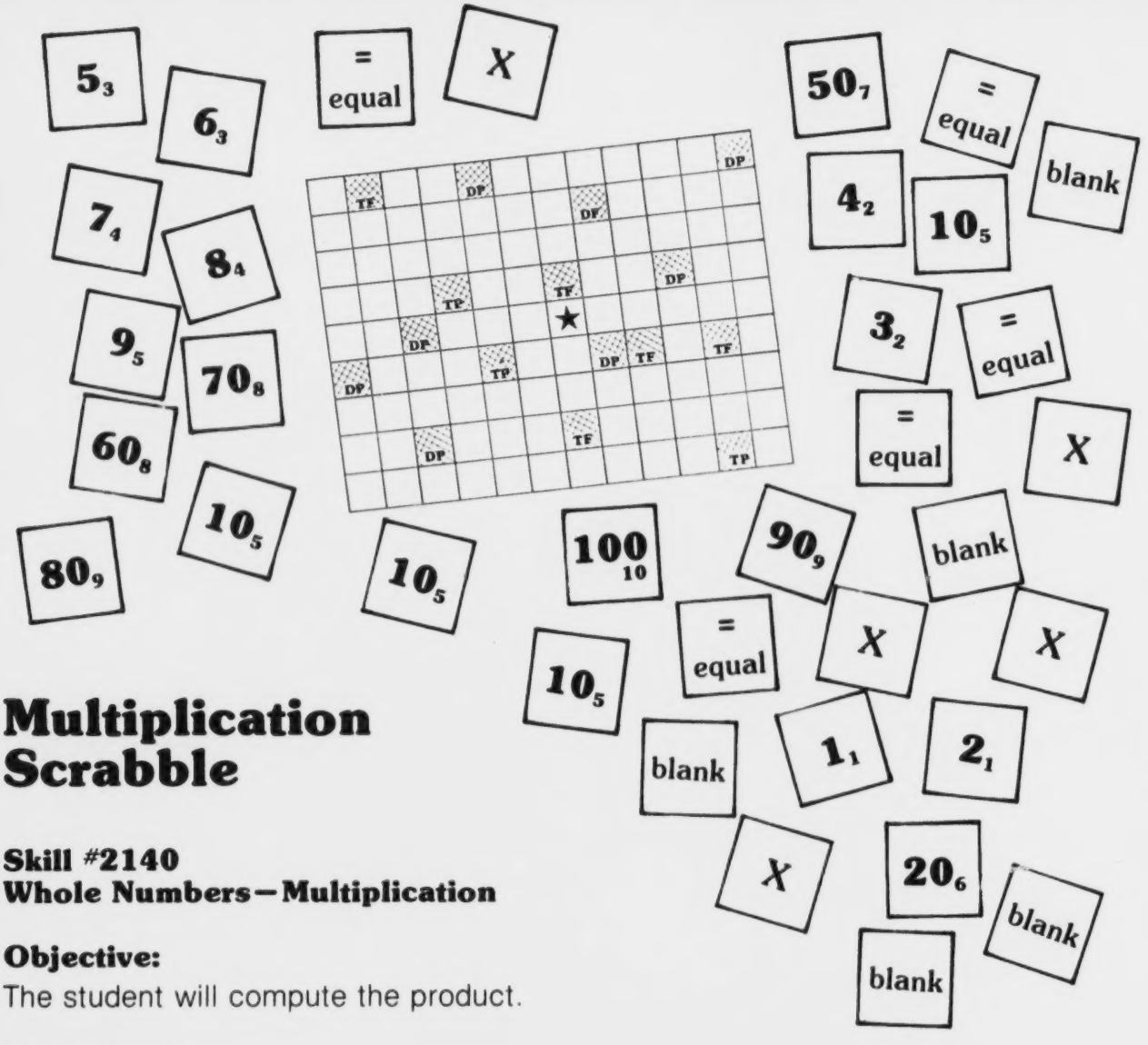
**A Follow-up Activity:**
Have two students compete to see who can first find the sum of the digits in each horizontal row.

# Facts Are Falling

**Skills #2120, #2130**
**Whole Numbers—Addition, Subtraction**

**Objective:**
The student will find the sum or difference.

**Directions:**
Prepare a set of cards like the ones shown above and divide them among the players. In alternating turns, each player may play a card on the date that corresponds to the sum or difference of the two numerals on the card. The board must be filled in sequence and each player is awarded the number of points equal to the date his card occupies. In any turn, if a player does not hold a card he can play, he may draw one from an opponent's hand. When the last date space has been filled, points are tallied and the lower value of the cards held in each hand is deducted from that player's score.




# Multiplication Scrabble

**Skill #2140**
**Whole Numbers—Multiplication**

**Objective:**
The student will compute the product.

**Directions:**
This game is for two to four players and is played like the word game "Scrabble." Playing pieces are spread face down. Each player will select ten pieces to use to form two-factor multiplication problems. The pieces will be numerals, blanks, multiplication signs and equal signs. A blank piece may be used in the game for any needed numeral or sign. One player begins by placing a problem in a position so as to cover the center star. He then figures his score by totaling the point values of his playing pieces. The next player will place his playing pieces on the board in such a way as to use one of the pieces already on the board to form his problem. If a factor is placed on a DF or TF square (Double Factor or Triple Factor), he may double or triple the factor itself and add this to his score. The same rule applies to Double Product or Triple Product squares, marked DP or TP. After each play, the student replaces the number of pieces used. Play continues until one player uses all of his pieces. Players then total the points of their remaining pieces and subtract these amounts from their scores. The student with the highest score wins.

Multiplication Scrabble

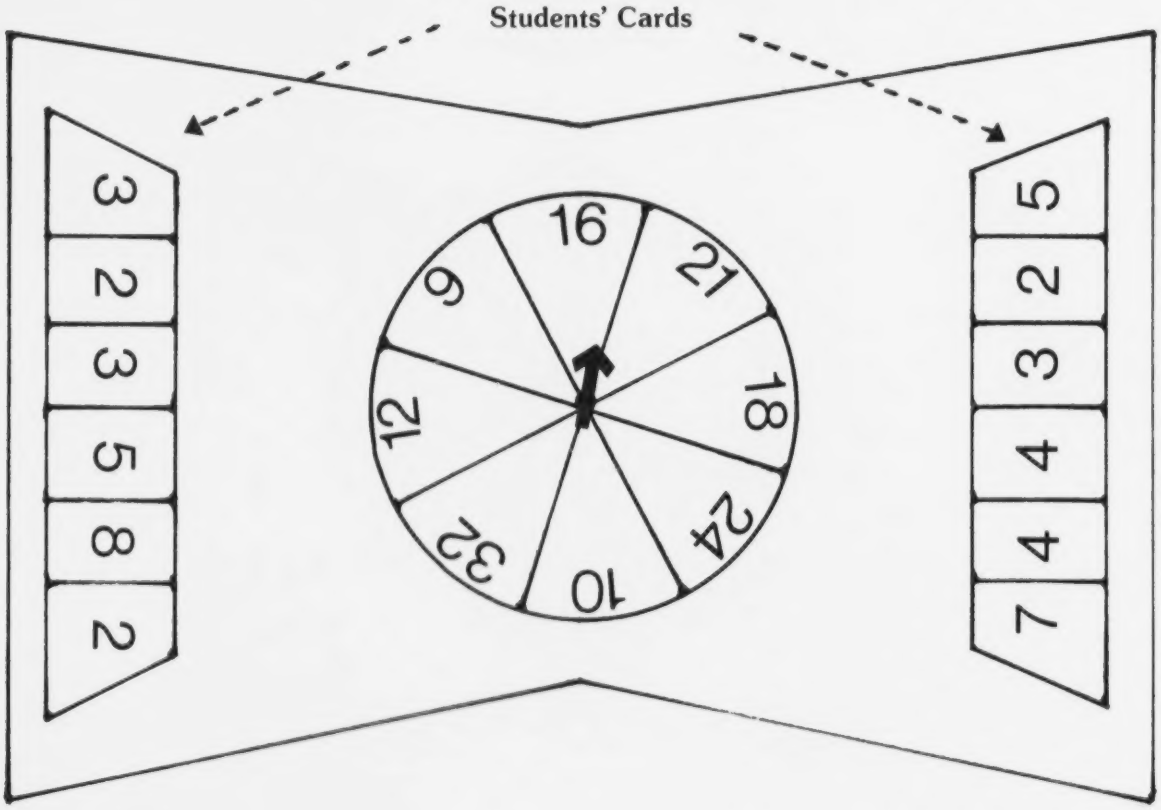



Multiplication Scrabble

Multiplication Scrabble

20

21



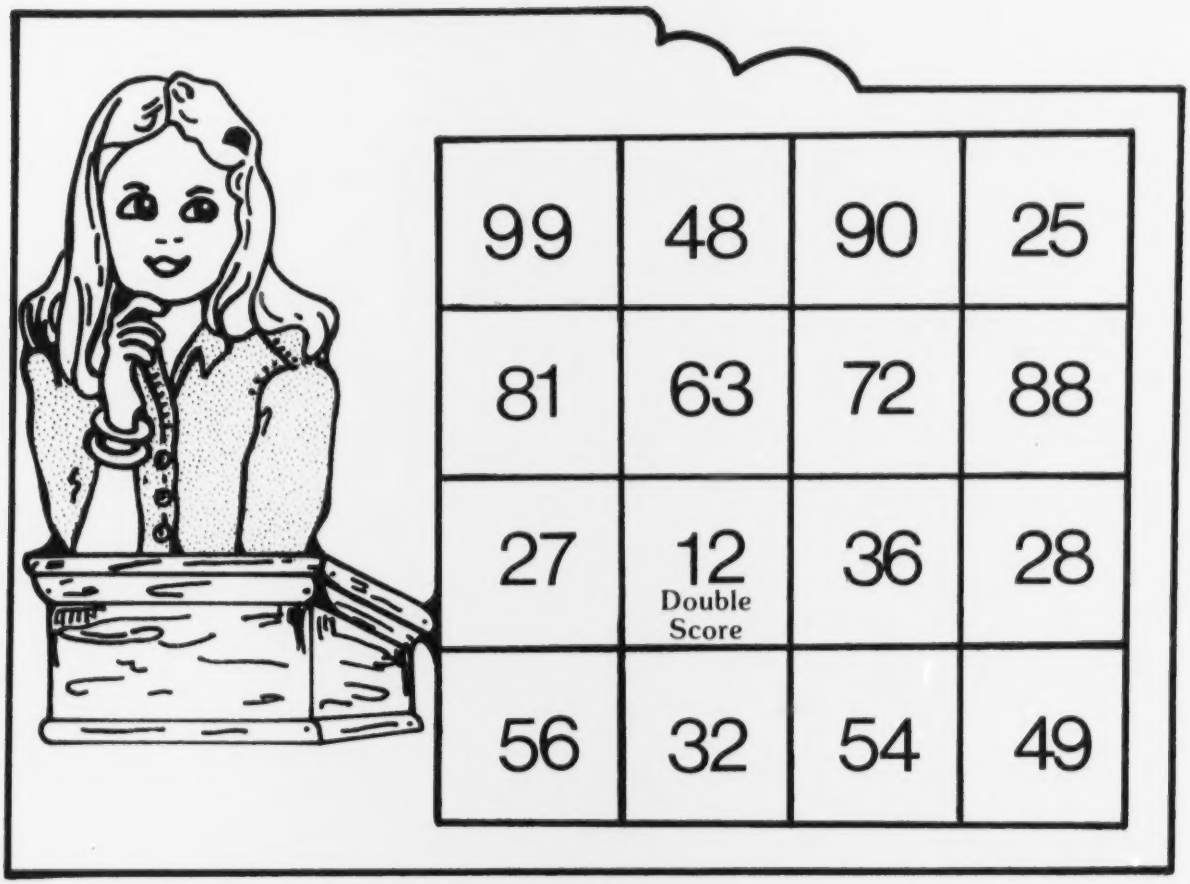

# Factor Fever

**Skill #2140**
**Whole Numbers—Multiplication**

**Objective:**
The student will compute the product.

**Directions:**
This activity requires the participation of two students. In alternating turns, each student spins the arrow to a numeral. If that student can use two or three of the numerals on his card as factors of that product, he may cross them out. The first student to use all of his numerals wins that round. Additional cards and disks may be used or numerals may be written with permanent marker on the laminated parts and then may be changed by erasing with hair spray.

**Follow-up Activities:**
1. Have the students play multiplication "rhythm." Everyone slaps his knees twice, claps his hands twice and snaps his fingers twice. The student who is "it" fits a math fact into the rhythm of the finger snaps.
2. Have the students make a collage of multiplication problems by utilizing colored dots to make arrays. This will make a bright and colorful bulletin board display.

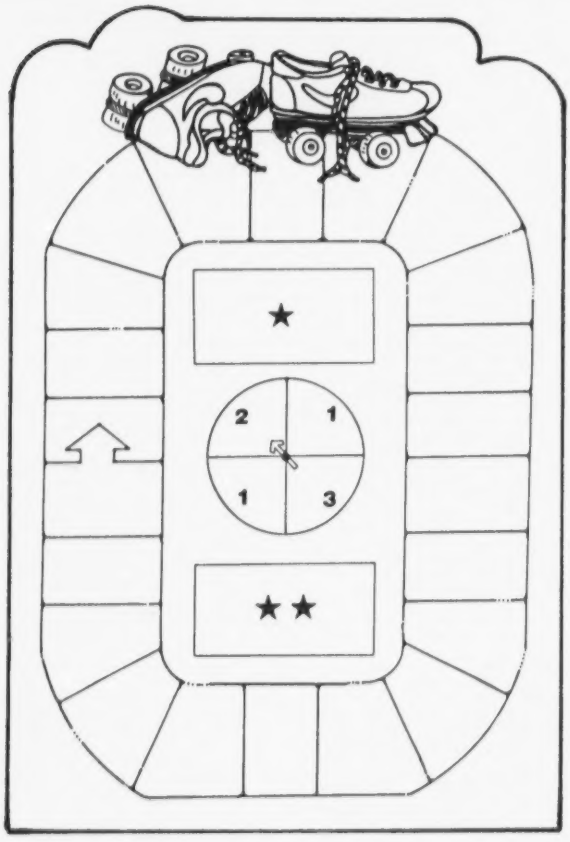



# Kwik Kalculations

**Skill #2140**
**Whole Numbers—Multiplication**

**Objective:**
The student will identify basic multiplication facts.

**Directions:**
In alternating turns, each player may claim a square by giving a multiplication problem that would result in the product on the square. If he does so correctly, he places his marker on the square and adds the face value of it to his score. The object of the game is to claim four squares in a diagonal, horizontal or vertical row for which 25 bonus points are earned. If a player includes the double-score square in his row of claimed squares, he receives double the bonus points (50). When all squares are covered, scores are tallied to determine the winner.




43 × 2 =

324 × 2 =

120 × 4 =

200 × 3 =

# Roller Derby

**Skill #2140**
**Whole Numbers—Multiplication**

**Objective:**
The student will compute the product.

**Directions:**
Each player places a token in the space marked "start." In alternating turns, each player spins the arrow and moves the number of spaces indicated. He draws one card from the single-star stack and tries to identify the product. If his response is correct, he may draw a card from the double-star stack. The student receives one point for each correct response. After each turn, the cards are returned to the bottoms of the stacks. When the first player has completed three turns around the "rink," points are tallied to determine the "Roller Derby" winner.

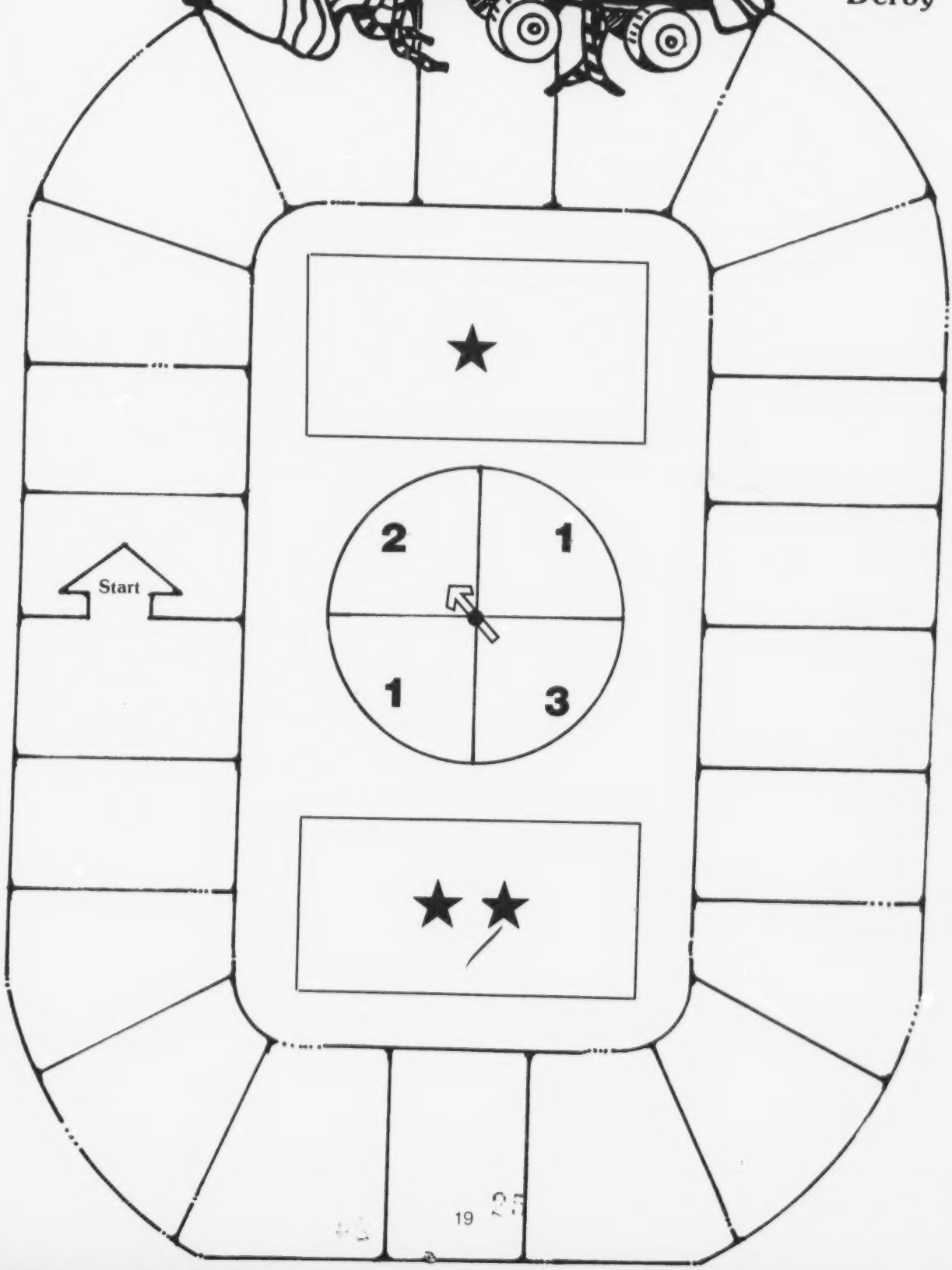
44 × 21 =

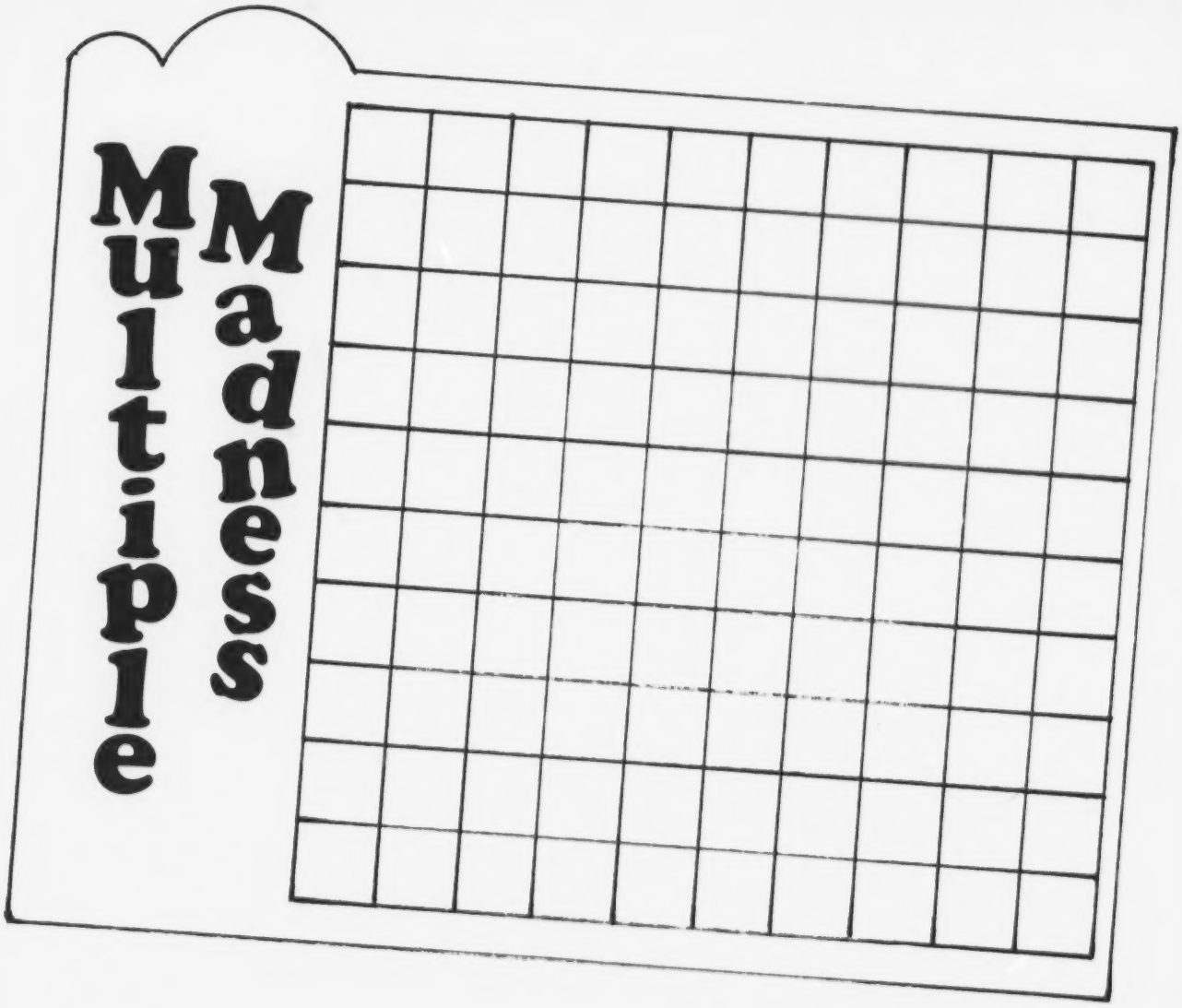
**These are the ★★ cards. Make them a little harder . . .**

915 × 47 =

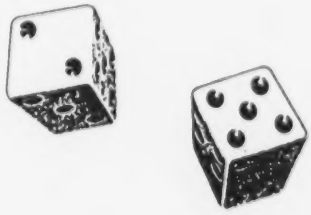
802 × 94 =

# Roller Derby



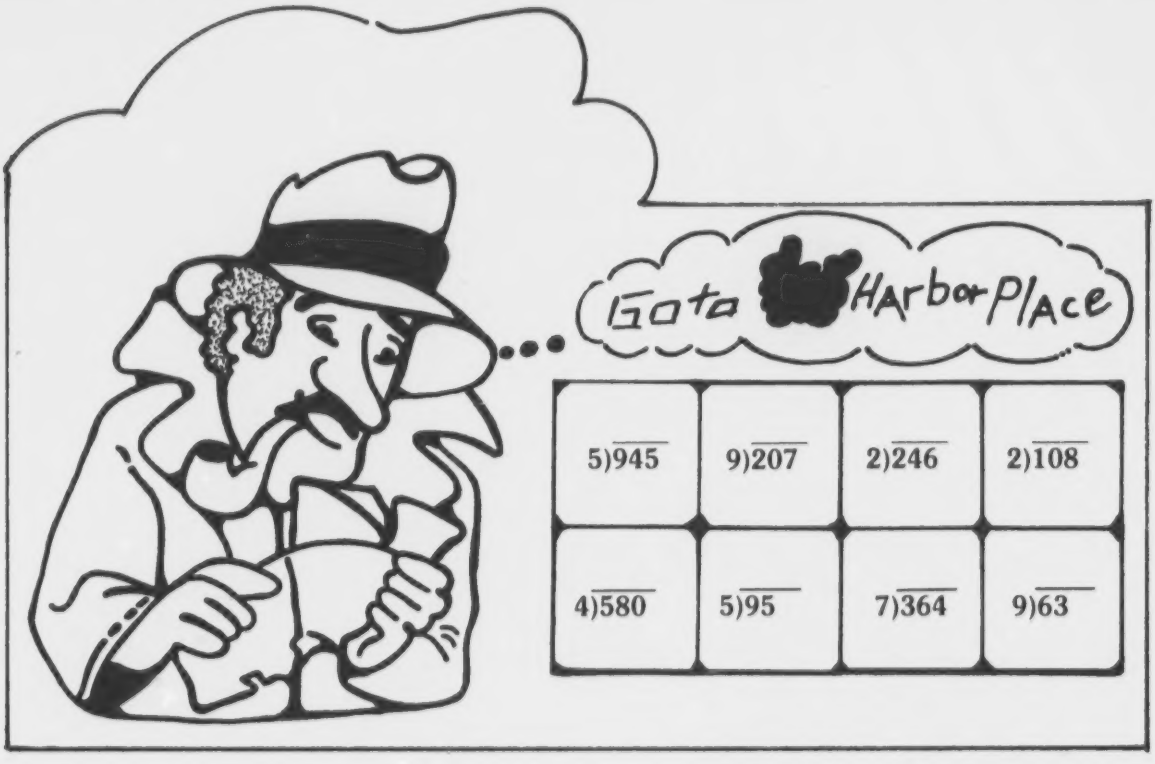



# Multiple Madness



**Skill #2140**
**Whole Numbers—Multiplication**
**Objective:**
The student will compute the product of two given factors.

**Directions:**
In alternating turns, each player must roll the dice, multiply the two numbers that are shown on the dice and then enter the product anywhere on the playing board. The object of the game is to enter a number that completes a square of numbers whose sum totals 50. One point is earned for each successful attempt. The game continues until one player has earned five points or until the board is filled, in which case the player with the most points wins.




Answer Key

| | | | |
|---|---|---|---|
| 189 | 23 | 123 | 54 |
| 1.5)945 | 9)207 | 2)246 | 2)108 |
| 145 | 19 | 52 | 7 |
| 4)580 | 5)95 | 7)364 | 9)63 |
| 2.612 | 3. 68 | 4. 476 | |

The mystery number is 476.

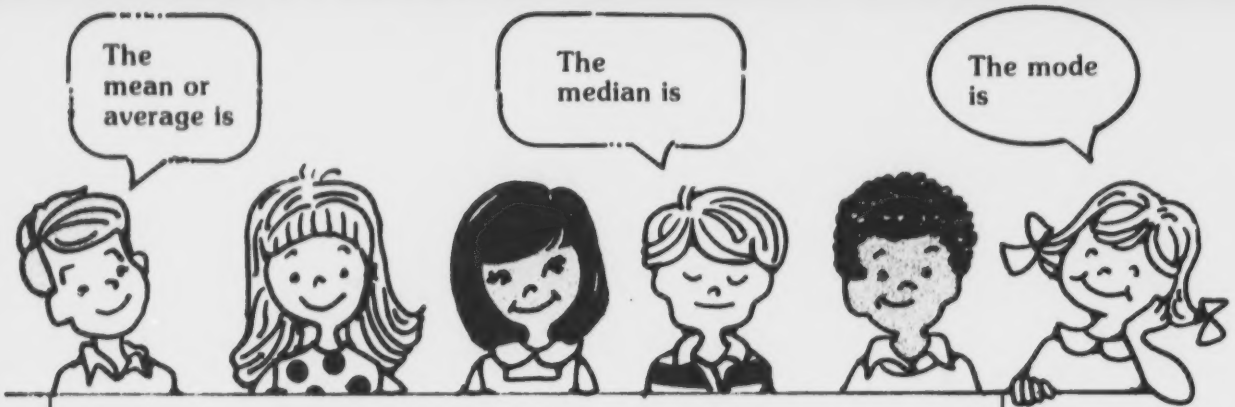
# The Case Of The Mystery Number!

**Skill #2150**
**Whole Numbers—Division**

**Objective:**
The student will compute the quotients.

**Directions:**
Gumshoe is on a search for the location of the warehouse where some crooks have stashed stolen goods. To help him, have the student work each division problem, add the quotients, divide the total by nine and multiply the answer by seven. If the student's calculations are correct, he will have identified the address of the warehouse.

**A Follow-up Activity:**
Have the student write a secret message using the following code: A = 1, B = 2, C = 3, etc. The message must be written using division problems; for example, 57 ÷ 3, 9 ÷ 3, 49 ÷ 49, 160 ÷ 8 = SCAT!




The mean, or average, is found by adding all the numbers and then dividing the sum by the number of numbers.

The median is the middle number if you are working with an odd number of numbers. If you are working with an even number of numbers, the median is the average of the two middle numbers.

The mode is the number that occurs the greatest number of times.

| Name | Test Score | Ordered Scores |
|---|---|---|
| Adams, A. | 84 | 58 |
| Allen, J. | 86 | 63 |
| Borwick, A. | 58 | 65 |
| Burner, G. | 94 | 68 |
| Callon, A. | 63 | 70 |
| Cooke, C. | 82 | 74 |
| Davis, F. | 87 | 75 |
| Drivers, R. | 65 | 76 |
| Fallon, C. | 84 | 78 |
| Howards, F. | 76 | 79 |
| Jackson, H. | 96 | 81 |
| Johnson, N. | 75 | 81 |
| Laventi, B. | 68 | 84 |
| Logan, D. | 89 | 84 |
| Marshall, G. | 79 | 84 |
| Needham, R. | 98 | 85 |
| Osley, J. | 70 | 86 |
| Parker, N. | 84 | 87 |
| Rogers, D. | 81 | 89 |
| Sweetman, W. | 74 | 90 |
| Trotter, L. | 85 | 94 |
| Tulman, M. | 78 | 96 |
| Wallace, K. | 90 | 98 |

# Median Madness

**Skills #2120, #2150**
**Whole Numbers—Addition, Division**

**Objective:**

The student will identify the sum and the quotient.

**Directions:**

The list above shows how the members of a mathematics class scored on a test. Have the student find the mean, median, and mode of the grades.

**Follow-up Activities:**

1. Have the student ask 20 seventh-grade students to tell him their heights. Have him find the mean, median, and mode.
2. Have the student get a roster of his favorite football team. Have him find the mean, median, and mode of the players' weights.
3. Have the student take a survey of 30 schoolmates to find the mean or average family size.

# Dot To Dot To Dot

**Skills #2120, #2130, #2140, #2150**
**Whole Numbers—Addition, Subtraction, Multiplication, Division**

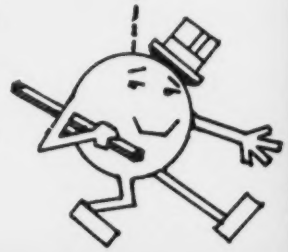
**Objective:**

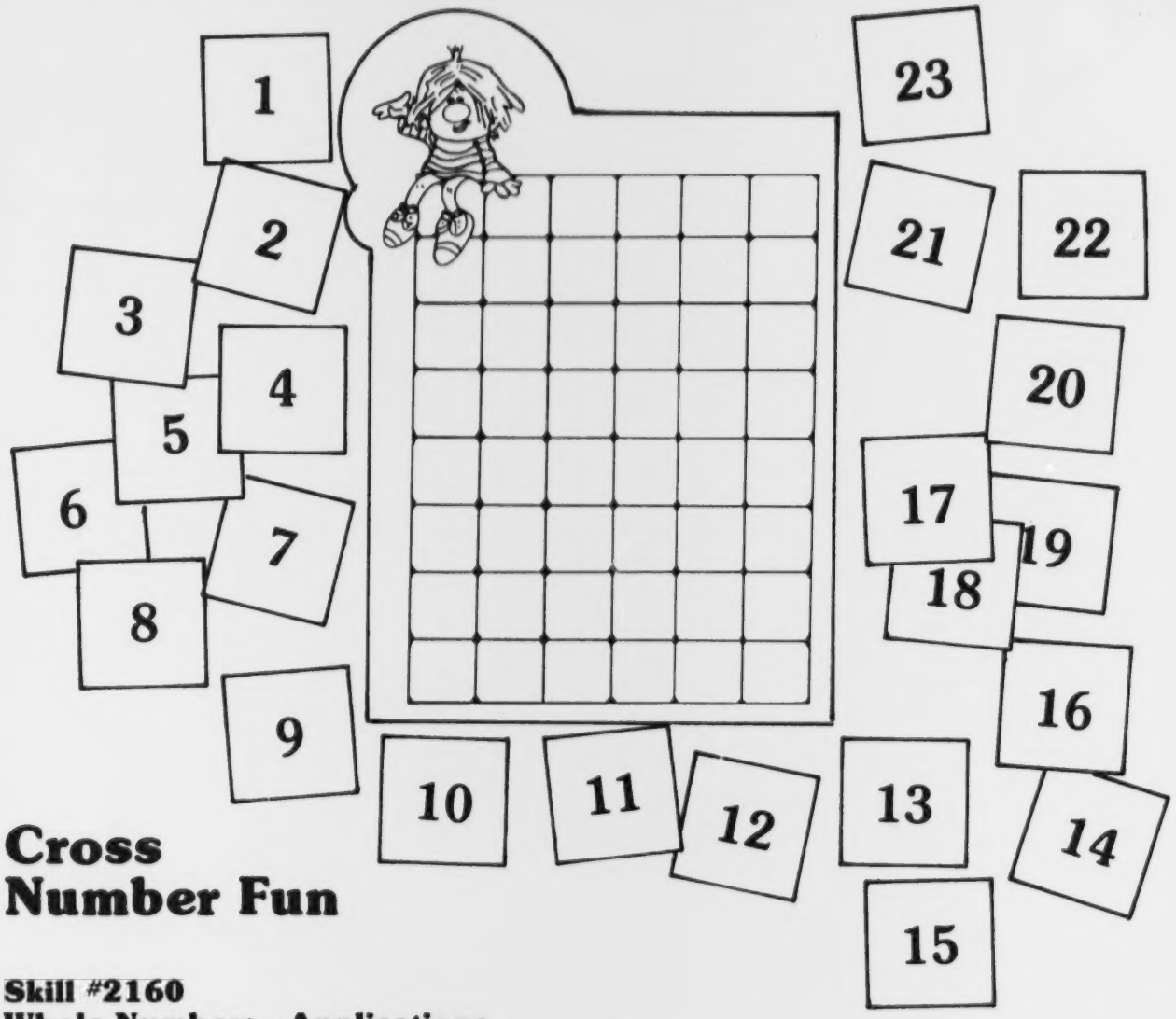
The student will compute the sum, the difference, the product or the quotient.

**Directions:**

In alternating turns, each of two players connects any two adjacent dots with a horizontal or vertical line. Each time a player draws a line that completes a rectangle, he may write, in the box provided, the answer to the problem found in the rectangle, and he may claim the rectangle by writing his initials on it. If his opponent correctly challenges his response and can give the correct answer, the opponent may claim the rectangle for himself. When all possible lines have been drawn, the player who has claimed more rectangles is the winner.

| | | | | |
|---|---|---|---|---|
| 25 + 5 = | 746 + 207 = | 55 × 5 = | 504 + 84 = | 8247 – 1746 = |
| 65 × 92 = | 62 – 37 = | 8036 – 6049 = | 92 × 10 = | 6944 + 124 = |
| 9241 – 5436 = | 1690 + 65 = | 258 + 6 = | 247 – 168 = | 5 × 60 = |
| 23 + 16 + 92 = | 18 × 70 = | 85 + 43 = | 5806 + 3387 = | 388 + 406 = |
| 9870 + 14 = | 1184 + 37 = | 700 – 579 = | 54 + 6 = | 1785 + 51 = |
| 172 – 45 = | 27 + 35 + 62 = | 9 × 9 = | 49 × 83 = | 3721 – 1953 = |
| 892 × 9 = | 434 – 67 = | 357 + 21 = | 216 – 186 = | 81 + 28 = |
| 678 + 825 = | 4 × 10 = | 306 + 89 = | 396 + 4 = | 510 × 4 = |






# Cross Number Fun

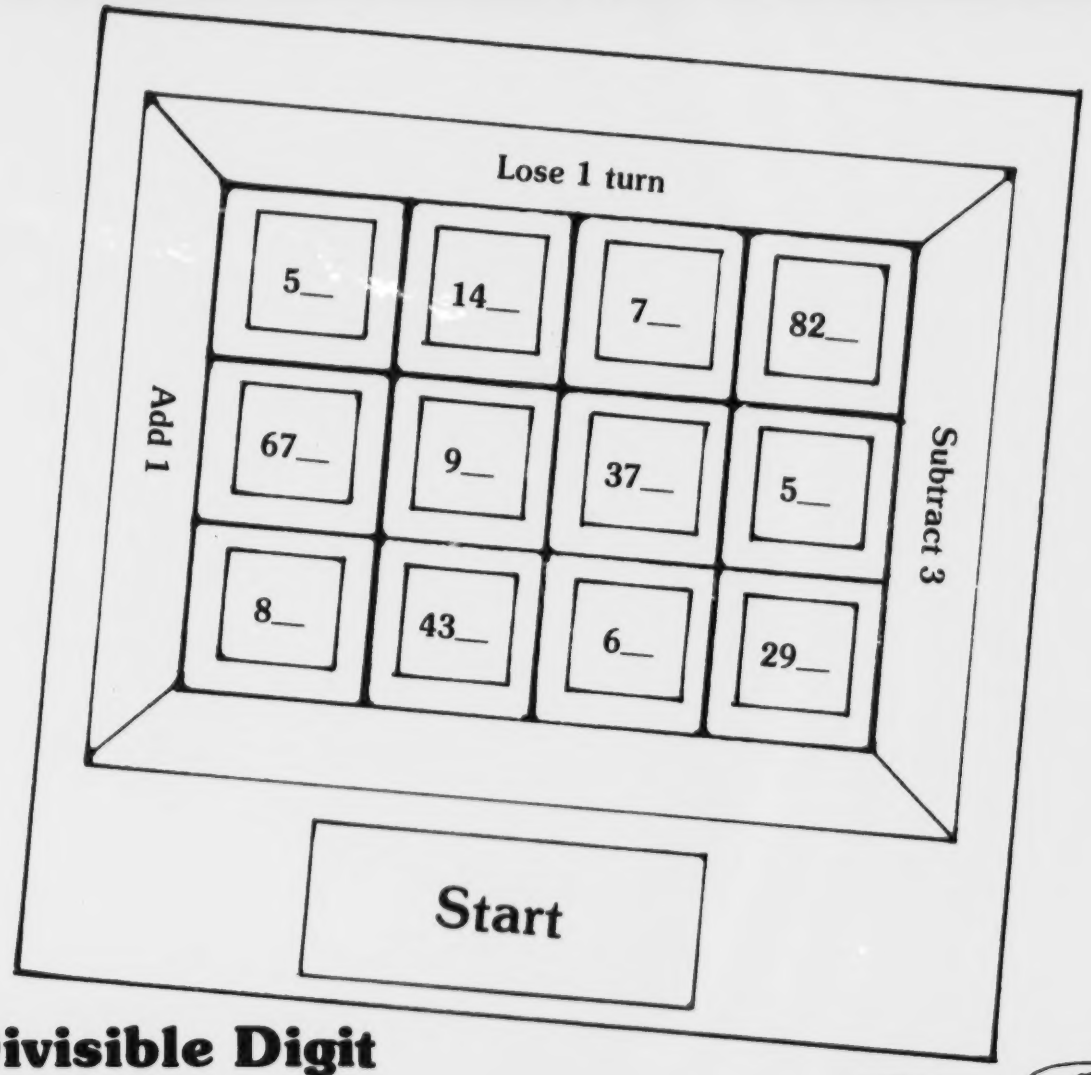
**Skill #2160**
**Whole Numbers—Applications**

**Objective:**
The student will identify patterns of addition and subtraction.

**Directions:**
The numeral cards are placed face down and each player draws seven cards to begin. The first player is determined by a high card draw which is returned to the stack. In alternating turns, each player sets up a horizontal or vertical pattern of numerals representing an operation of addition or subtraction. After the first play, each pattern must be built around at least one numeral already on the board and must fit in a pattern with any other numeral that is adjacent. After each turn, the player draws a card for each one he played. Two points are scored for each card played and also for each card in a pattern that is added to. The multiple-score squares refer to the score of the pattern but are used only once in each game. When no more plays are possible or the cards are exhausted, points are tallied to determine the winner. One point is deducted for each card held at the end of the game.

# Cross Number Fun!

| | | | | |
|---|---|---|---|---|
| | | | | |
| | Double Score | | | |
| | | | | |
| | | Begin Here | | |
| | Double Score | | | |
| | | | | Double Score |
| | Triple Score | | | |
| | | | | |




# Divisible Digit

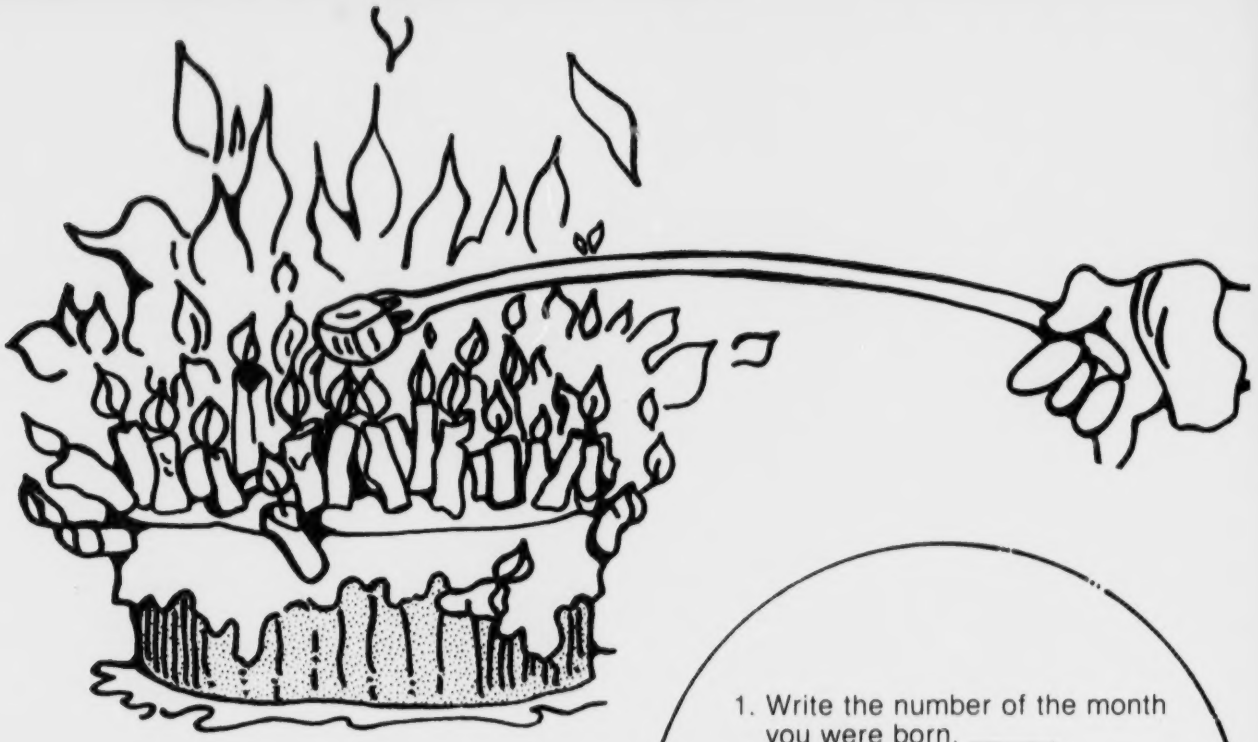
**Skill #2160**
**Whole Numbers—Applications**

**Objective:**

The student will identify a digit which makes a number divisible by a specified number.

**Directions:**

Each player receives one set of playing pieces consisting of two 2's, two 4's and two 6's. In alternating turns, each student tries to position one of his disks onto a numeral square by giving it a short quick push. If it touches more than one square, the player has a choice of squares, provided they haven't been claimed. The student must identify a digit (other than the one on the disk) which, if placed in the ones' place, makes the number divisible by the number on the disk. If identified correctly, the player writes the number in that square, and the number of points he receives is the number on the disk. During the game, each disk may be played only once, but each player is allowed two extra starts for out-of-bounds. After all disks have been played, the student with the highest score wins.



# Today Is Your Birthday

**Skill #2160**
**Whole Numbers—Applications**

**Objective:**
The student will identify the answer to a problem involving mixed operations.

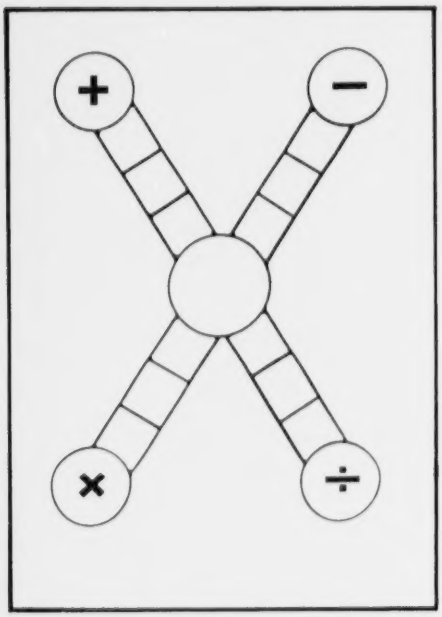
**Directions:**
Have the student calculate his age and the month and day he was born by following the instructions in order.

1. Write the number of the month you were born. _____
2. Multiply by 2. _____
3. Add 5. _____
4. Multiply by 50. _____
5. Add the secret number 1435. _____
6. Subtract the year you were born. _____

The last two numbers are your age this year.

1. Write the number of the month and day you were born.
   _____ _____
2. Multiply the month of your birth by 5. _____
3. Add 6. _____
4. Multiply by 4. _____
5. Add 9. _____
6. Multiply by 5. _____
7. Add day of birth to that total. _____
8. Subtract 165. _____

The last two numbers will be the date of your birth. The first number will tell you the month of your birth.




A gardener had 6 gals. 3 qts. of weed spray. He bought 4 gals. 3 qts. more. How much weed spray does he have all together?

A unit of length called a "chain" is used by surveyors.
1 chain = 65 feet
How many feet are in 325 chains?

Flosswood High's basketball team scored 1,848 points in 28 games. What was the team's average score?

Harold can read newspapers at the rate of 475 words per minute. How many words could he read in an hour?

In Claremont City, there are 33,275 people who are eligible to vote. During an election, 21,639 people cast their votes. How many eligible voters did not go out to vote?

There are 37,740 seats in a baseball stadium. The stadium charges $5 for each seat. If 9,216 seats are empty at a game, how much did the stadium take in?

There are 3,476 students in the community college and 11,549 students in the university. How many students in all attend the two schools?

# Solution Search

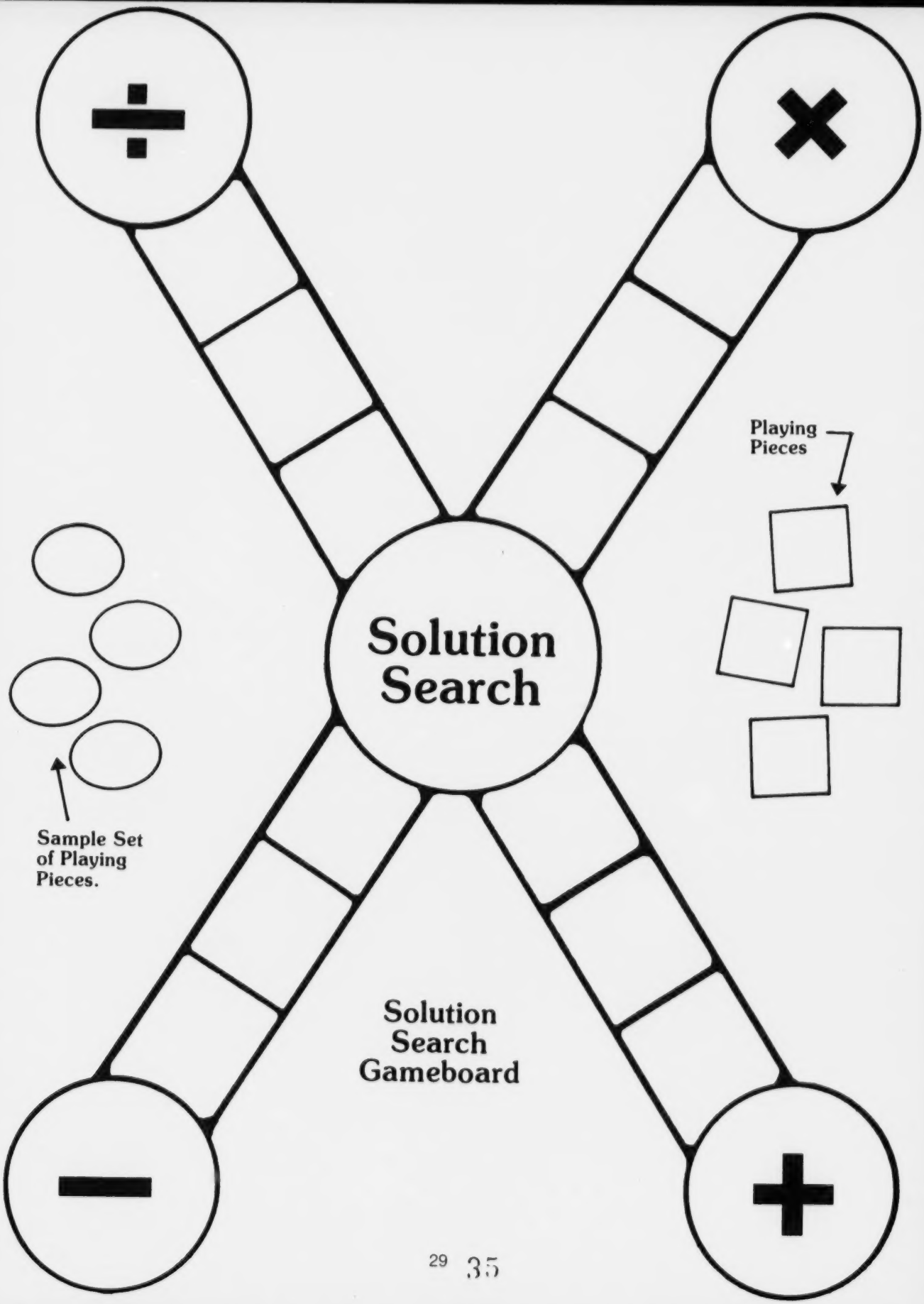
**Skill #2160**
**Whole Numbers—Applications**

A factory produced 15,000 light bulbs. Each carton holds 36 bulbs. How many cartons must be used to pack the bulbs?

How much more white paint than red paint did a painter have if he had 49 gals. of white and 37 gals. of red?

**Objective:**
The student will identify the appropriate procedure for solving a word problem.

**Directions:**
Each of two to four players will receive four playing pieces. The word-problem cards are placed face down on the center circle of the gameboard. The purpose of the game is to reach each of the four operation circles by solving word problems. In alternating turns, each player will draw a card, determine the proper procedure and solve the problem. If he is correct, he will place one of his pieces on the first square to move toward the sign of the operation used in solving the problem. If two procedures are used, he may move playing pieces in both directions. The first person to get one of his pieces in each of the four operation squares is the winner.




Solution
Search
Gameboard

Jim bought two records for $4 each and an 8-track tape. He spent $13 in all. How much did the tape cost?
$4 × 2 = $8  $13 − $8 = $5

Mr. Hardy bought three shirts and three ties. Each tie cost $4. In all, he spent $36. How much did each shirt cost?
$4 × 3 = $12  $36 − $12 = $24
$24 ÷ $3 = $8

**Round 1 sample word problem card** →

One hundred ten people went on a picnic. Twelve cars each carried six people. The rest of the people went on a bus. How many people went on the bus?
12 × 6 = 72  110 − 72 = 38

← **Put answer on back of the card**

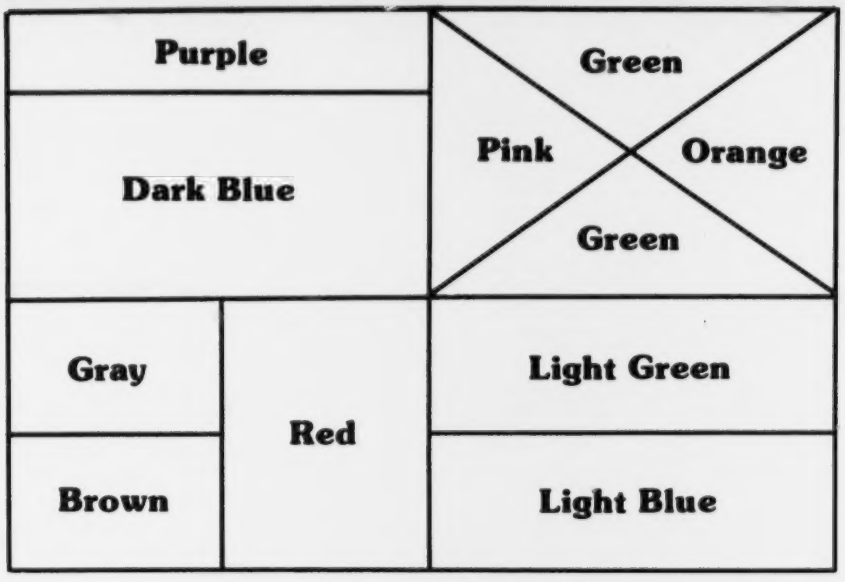
| | | | | | |
|---|---|---|---|---|---|
| 3 × 4 = 12<br>36 − 12 = 24<br>24 + 3 = $8 | 4 × 3 = 12<br>36 − 12 = 24<br>24 + 3 = $8 | 36 × 3 = 108<br>108 − 36 = $72 | 4 + 3 = 7<br>36 − 7 = 29<br>29 − 3 = $26 | 4 × 3 = 12<br>36 ÷ 12 = 3<br>3 × 3 = 9 | 3 × 4 = 12<br>36 − 12 = 24<br>24 + 3 = $8 |

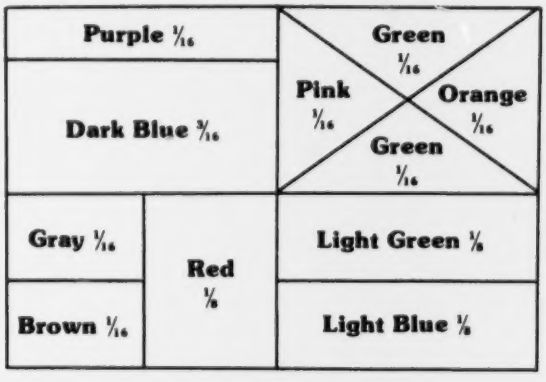
# "Match Game"

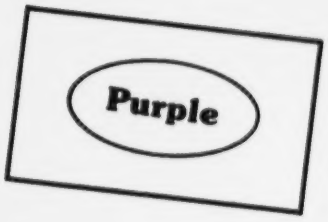
**Skill #2160**
**Whole Numbers—Applications**

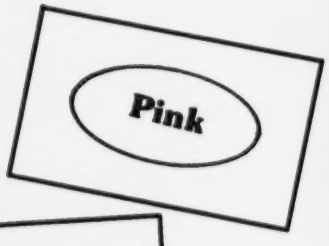
**Objective:**
The student will identify a number sentence for solving a problem and will determine the answer.

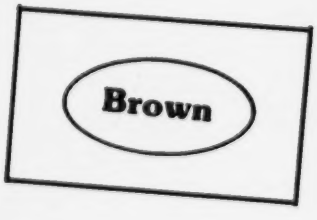
**Directions:**
Divide students into two teams of three each. One player, selected as scorekeeper, selects a word-problem card like the example given above. The card is then displayed for the players on both teams to read. Each player determines the procedure needed to solve the problem and writes the number sentence and answer on his card. After a time period of three minutes, the scorekeeper turns the card over to reveal the answer. The first player on team A shows his answer. If he is correct, he receives one point. If the second player's answer matches, two points are scored and if the third player's answer matches, they receive a bonus of five points. Team B follows the same procedure. The team scoring more points at the end of round six is the winner. A suggestion: Laminate the players' blank cards and erase the answers with hair spray between rounds.







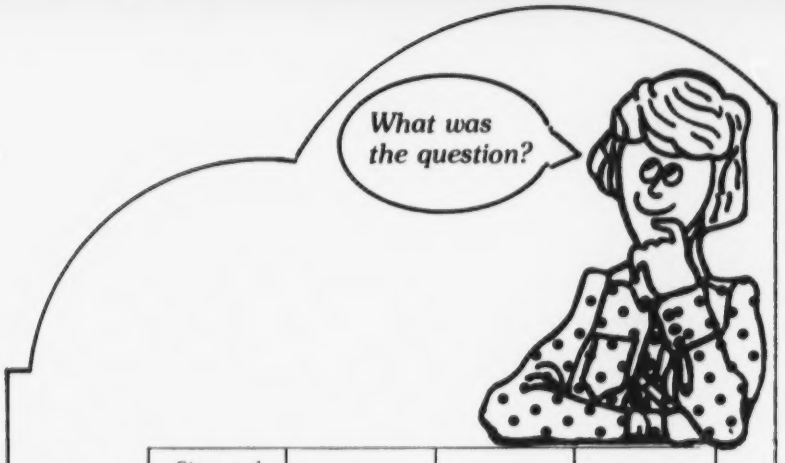

# A Fraction Of Color

**Skill #3110**
**Fractions—Basic Characteristics**

**Objective:**
The student will identify the part of a whole shape corresponding to a fraction.

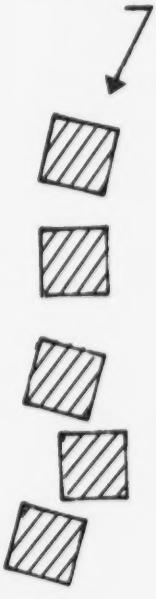
**Directions:**
Have the students shuffle the cards and place them face down in a stack. In alternating turns, each player draws a card and tries to identify the fractional part of the rectangle that is colored the same as the card drawn. If the student is correct, he keeps the card, but if he does not answer correctly, the card is placed at the bottom of the stack. When all cards have been claimed the student holding the most cards is the winner.

Cover gameboard with blank cards.




| Points | Signs and Terms | Addition | Muliplication | Division |
|---|---|---|---|---|
| 1 | – | Sum | Product | $\frac{5}{6} \div \frac{1}{6}$ |
| 2 | × | $? + \frac{1}{4} = \frac{2}{4}$ | 4 | $3 \div \frac{1}{3}$ |
| 3 | – | 1 | 10 | 3 |
| 4 | 3 | 55 | 20 | $\frac{?}{6}$ |
| 5 | 5 | 120 | 60 | $\frac{1}{?}$ |

Provide blank cards.

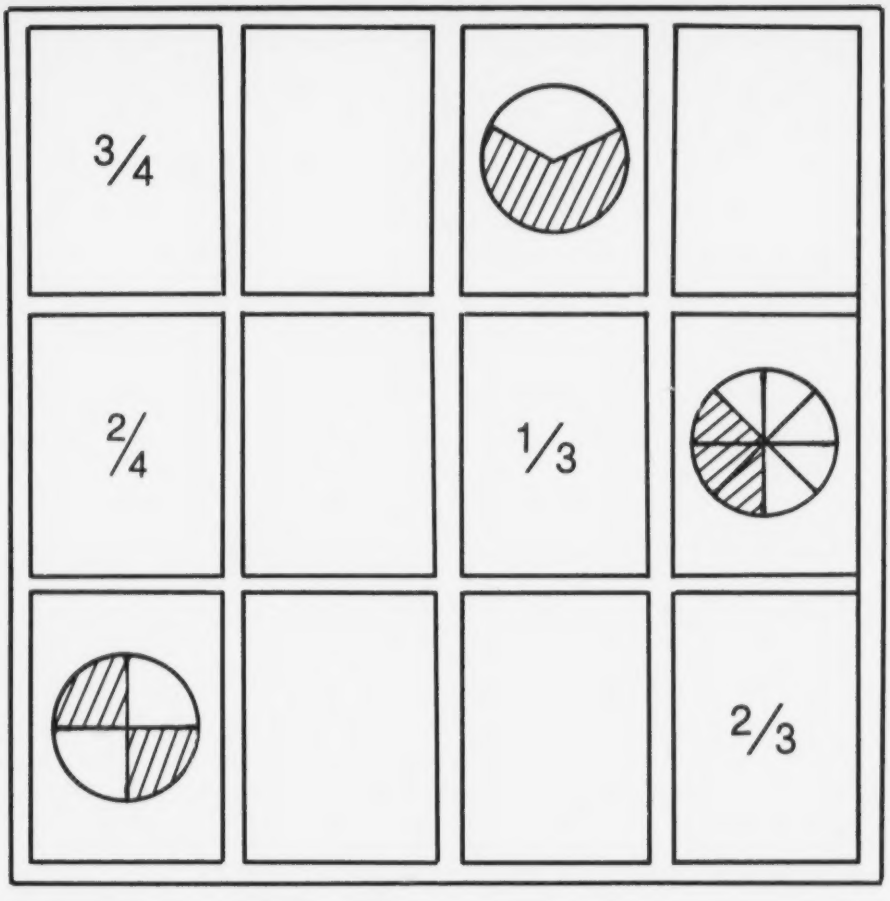


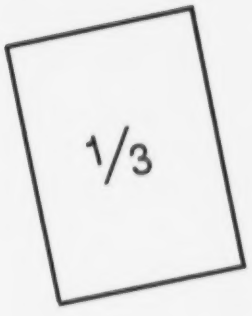
# Fractional Jeopardy

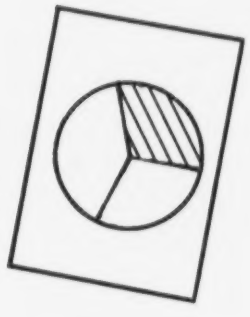
**Skill #3110**
**Fractions—Basic Characteristics**

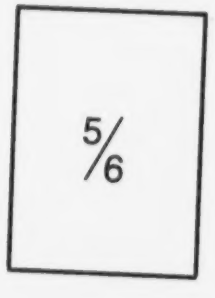
**Objective:**
The student will understand basic characteristics of fractions.

**Directions:**
Have a student cover each frame on the gameboard with a blank card. In alternating turns, each player selects a category and names the points for which he wants to try. That card is removed to expose the frame, and the player must give the questions that would result in the answer shown. If his response is correct, he is awarded the points; if not, the frame is covered again. In either case, the turn goes to the next player. When all frames have been uncovered, the player with the highest score is the winner.



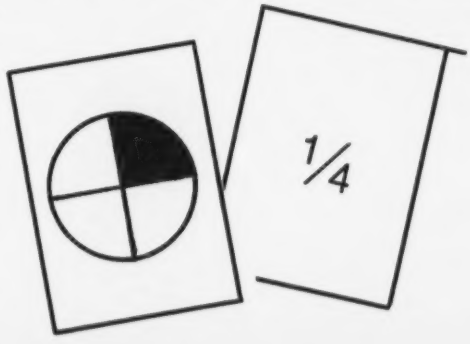


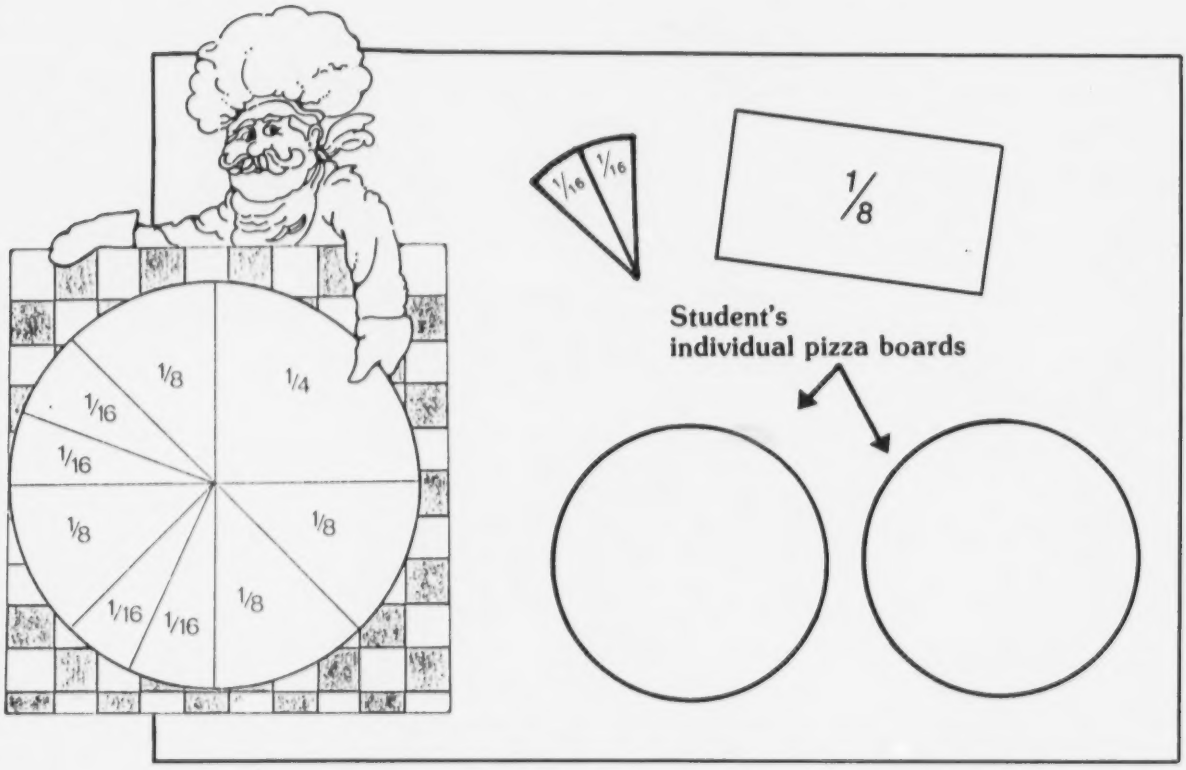

# A Chip Off The Old Fraction

**Skill #3110**
**Fractions—Basic Characteristics**

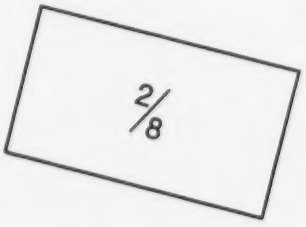
**Objective:**
The student will identify the part of a whole shape or object corresponding to the fraction.

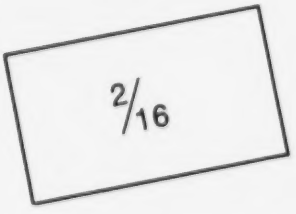
**Directions:**
This activity requires two players with the object of the game being to match cards showing fractions with their physical representations. The cards are placed on the board as in the game of "Concentration." The players, in turn, select two cards for a possible match. If a match occurs, that player receives the number of chips indicated by the numerator on the card.
After all cards have been matched, the player having more chips is the winner.

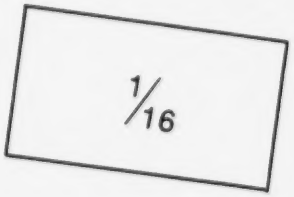





# Pizza That's Fine . . .
# In A Fraction Of Time




**Skill #3120**
**Equivalent Fractions**

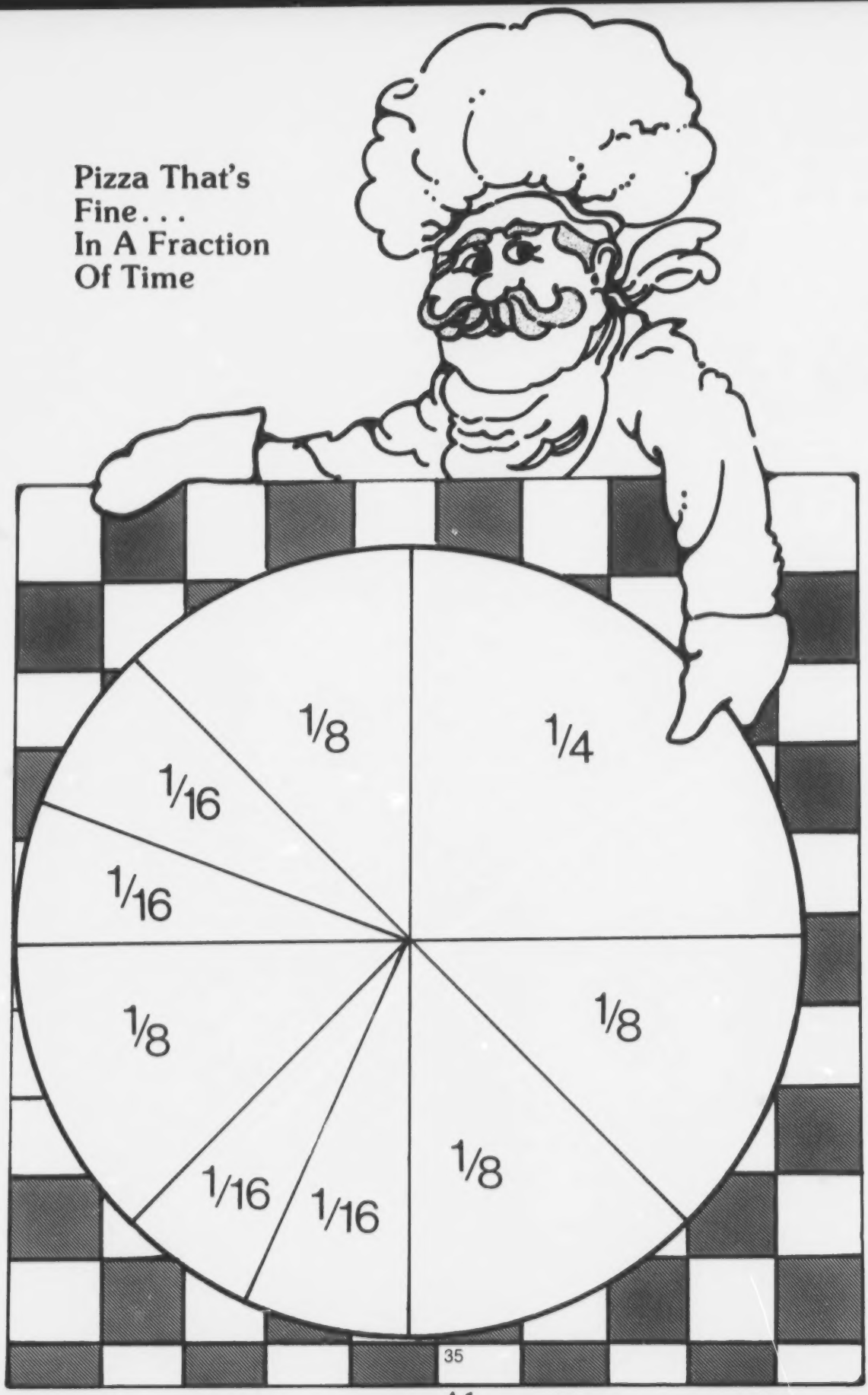
**Objective:**

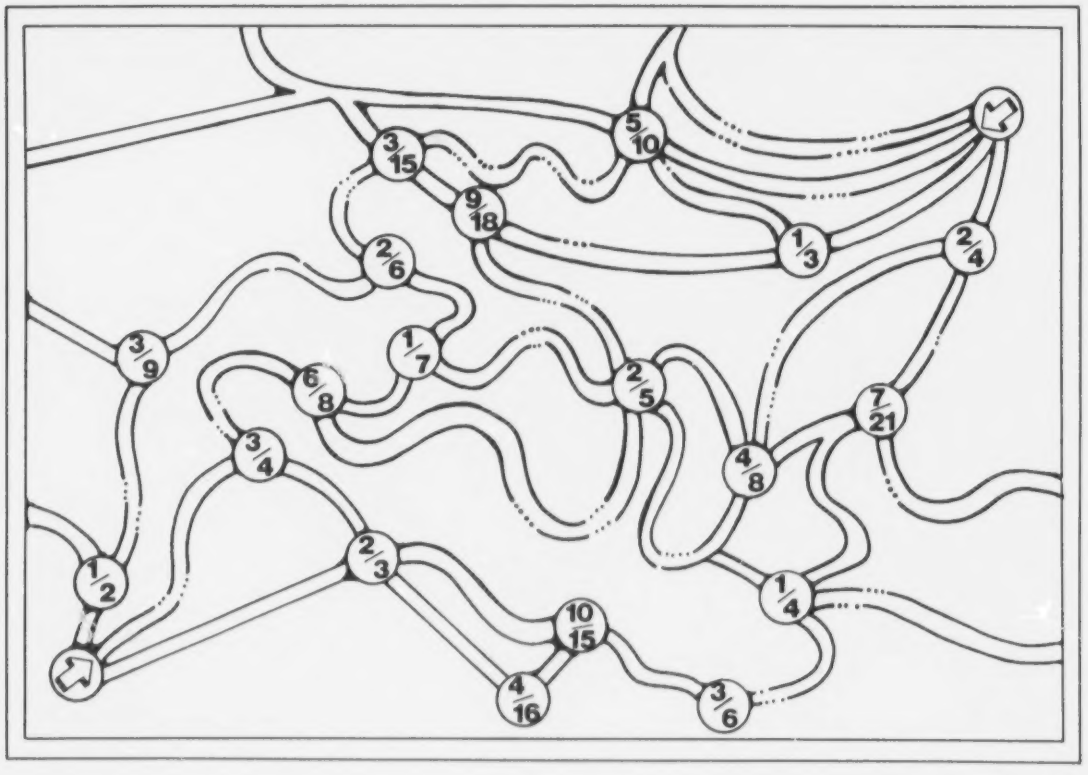
The student will identify a fraction equivalent to a given fraction.

**Directions:**

Two students will compete for a job at Romino's Pizza. The employer has told them that the first one to put a pizza together will get the job. Provide each player with a blank pizza wheel, and prepare a stack of fraction cards and a set of fractional pizza slices as shown above. In alternating turns, each player draws a fraction card from the stack and chooses one or more pizza slices to represent an equivalent fraction on his pizza wheel. If a player draws a fraction card and has no space to represent it on his pizza wheel, he must forfeit his turn. The first player to complete his pizza is the winner.

**Pizza That's Fine... In A Fraction Of Time**



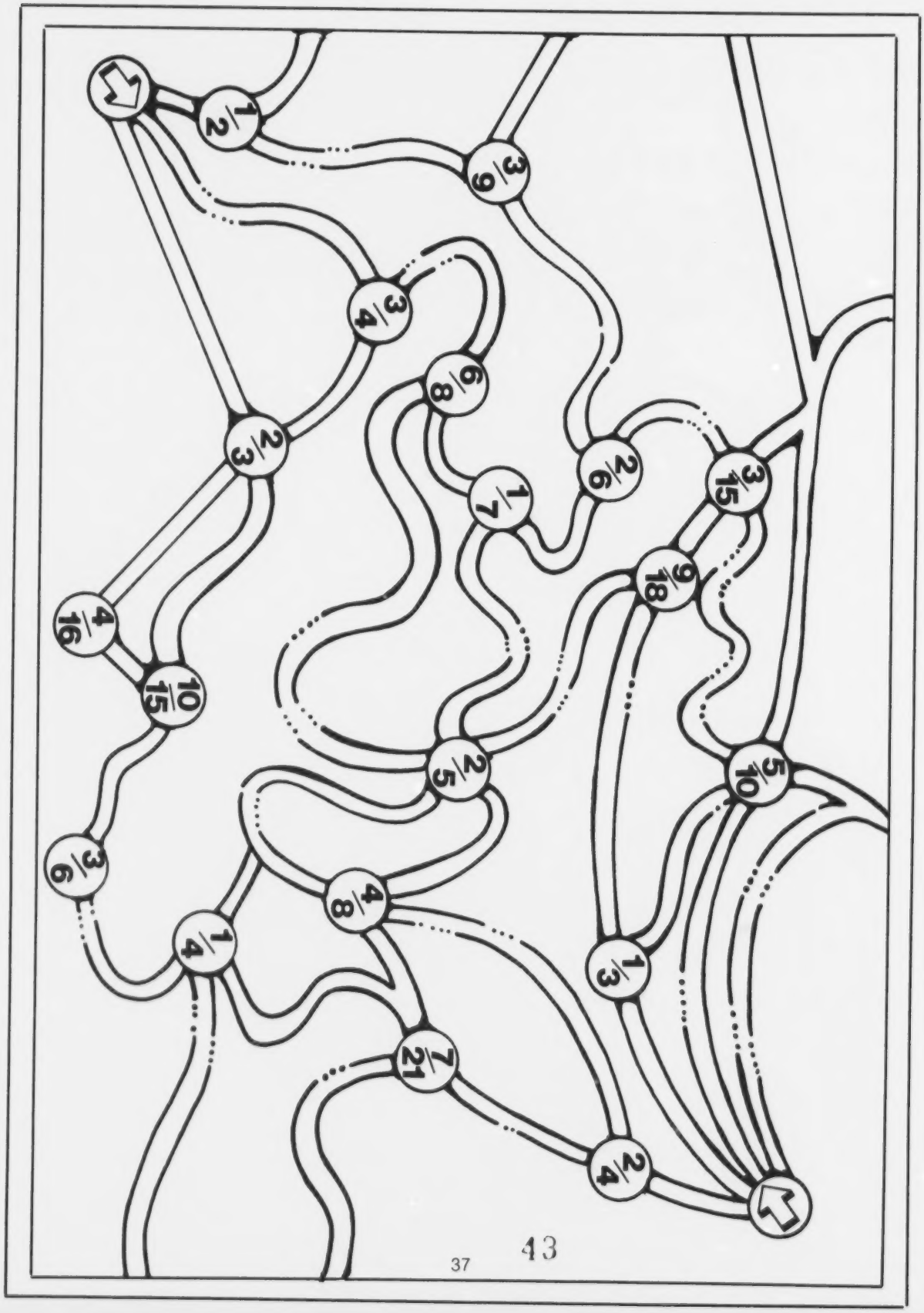



# Fraction "Track"tion

**Skill #3120**
**Equivalent Fractions**

**Objective:**
The student will identify a fraction equivalent to the given fraction.

**Directions:**
This activity requires two players placing their pawns in opposite corners. In alternating turns, each player is allowed one move toward his opponent's corner. Upon landing on a space, the player must give an equivalent fraction for the one written on that space, or he forfeits his next turn. Should the players' tracks cross, the player who can land on the space his opponent occupies forces him back two spaces. If a player lands on a space where his opponent has been, he must give an equivalent fraction different from the one previously given. The first player to reach his opponent's starting place is the winner.


1/2
3/9
3/4
6/8
2/3
1/7
2/6
3/15
9/18
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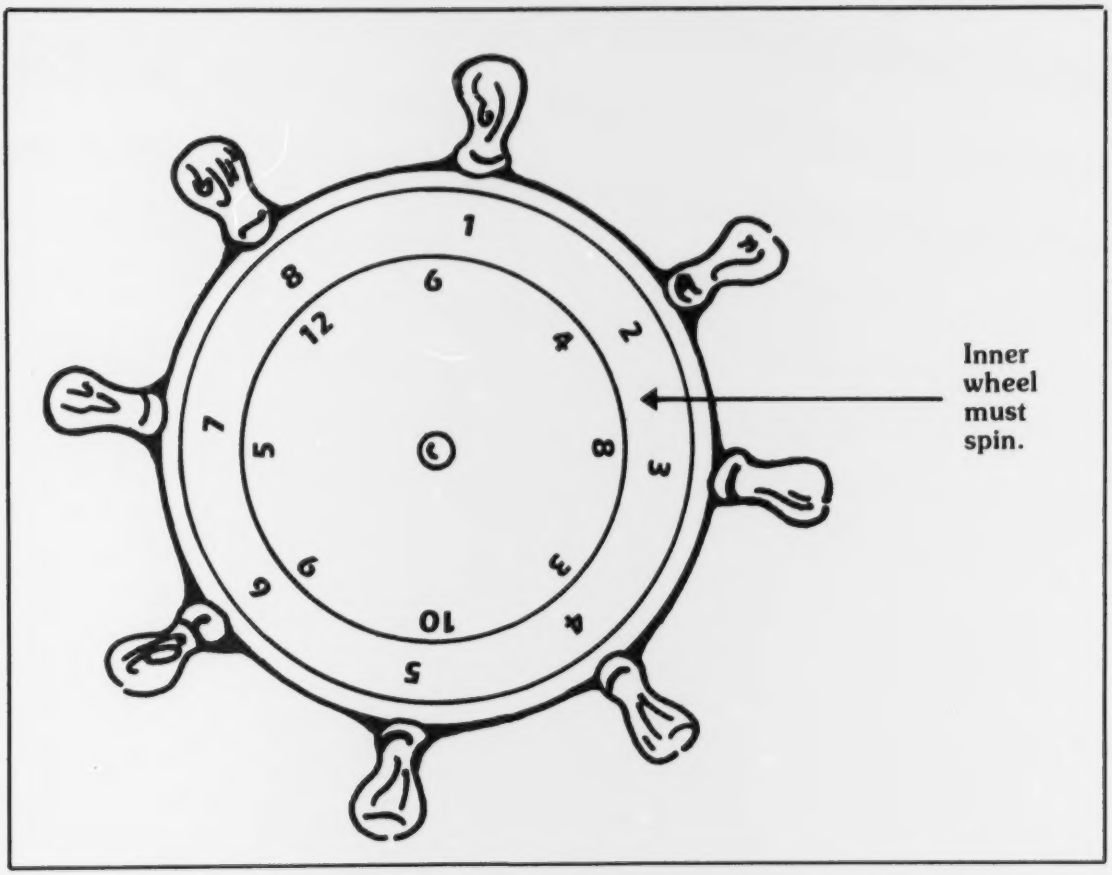


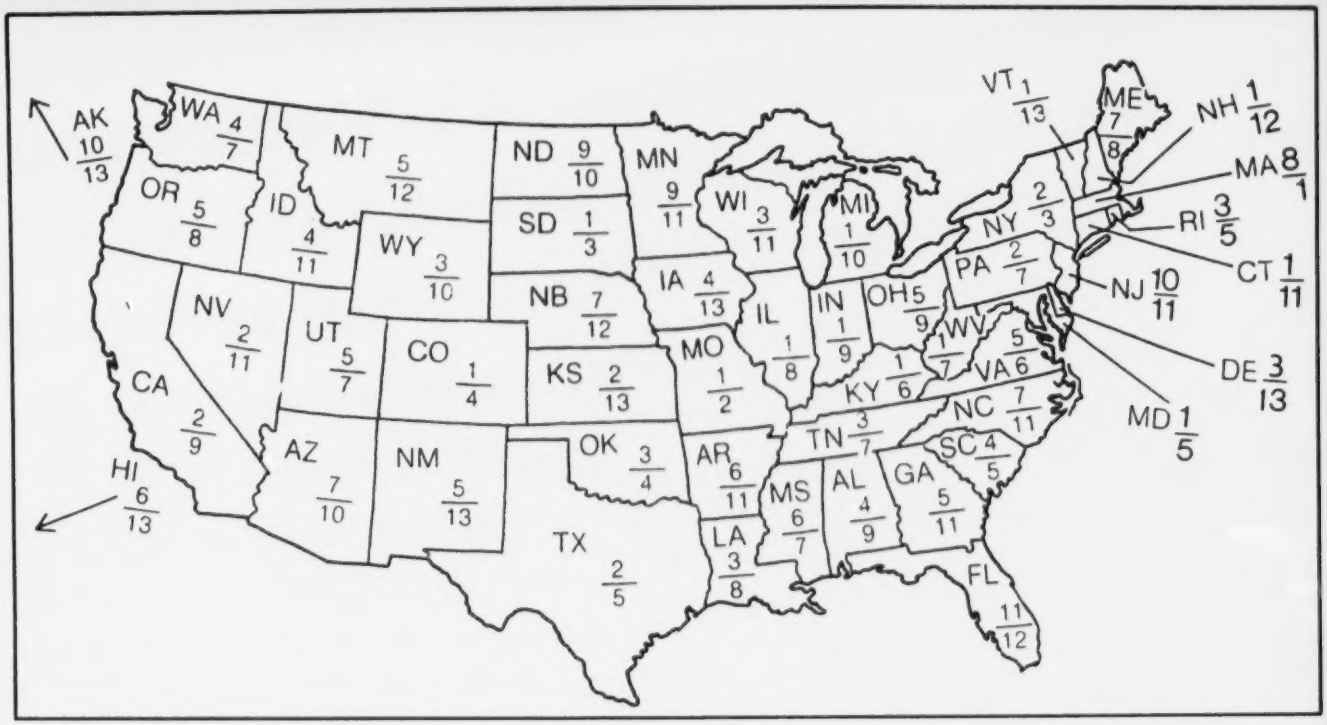

# Wheel Of Fractions

**Skill #3120**
**Equivalent Fractions**

**Objective:**
The student will identify an equivalent fraction for each given fraction.

**Directions:**
In alternating turns, each player spins the inner wheel. He must try to give an equivalent fraction for each fraction formed from his spin. He receives one point for each correct response. Each student must keep a record of his responses so that he may disqualify any fraction that is repeated in any one game. The first player to reach a score of 33 is the winner.

**A Follow-up Activity:**
Write a fraction on the chalkboard. Have each student select an outer number on the wheel and spin. The first player to spin an equivalent fraction scores a point.




Wave goodbye to the Gateway Arch and leave $\frac{4}{8}$. _____
Go to $\frac{4}{32}$ and spend the day in Lincoln's land. _____
Stop at $\frac{8}{28}$ and ring the Liberty Bell. _____
Continue north to $\frac{8}{12}$ and view the Statue of Liberty. _____
Change directions and go to $\frac{5}{30}$ and explore the Bluegrass State.
Go to $\frac{12}{16}$ and take a look at all the oil wells. _____
Go a little further south to $\frac{1}{10}$; then explore the Alamo._____
Keep going to $\frac{28}{40}$ and visit the Grand Canyon. _____
Try your luck at panning gold in the state of $\frac{1}{18}$. _____
Take a rest in $\frac{6}{24}$ and gaze at the majestic mountains. _____
Stop in $\frac{15}{36}$ and see the glaciers in Glacier National Park. _____
Visit $\frac{3}{9}$ and see Mt. Rushmore. _____

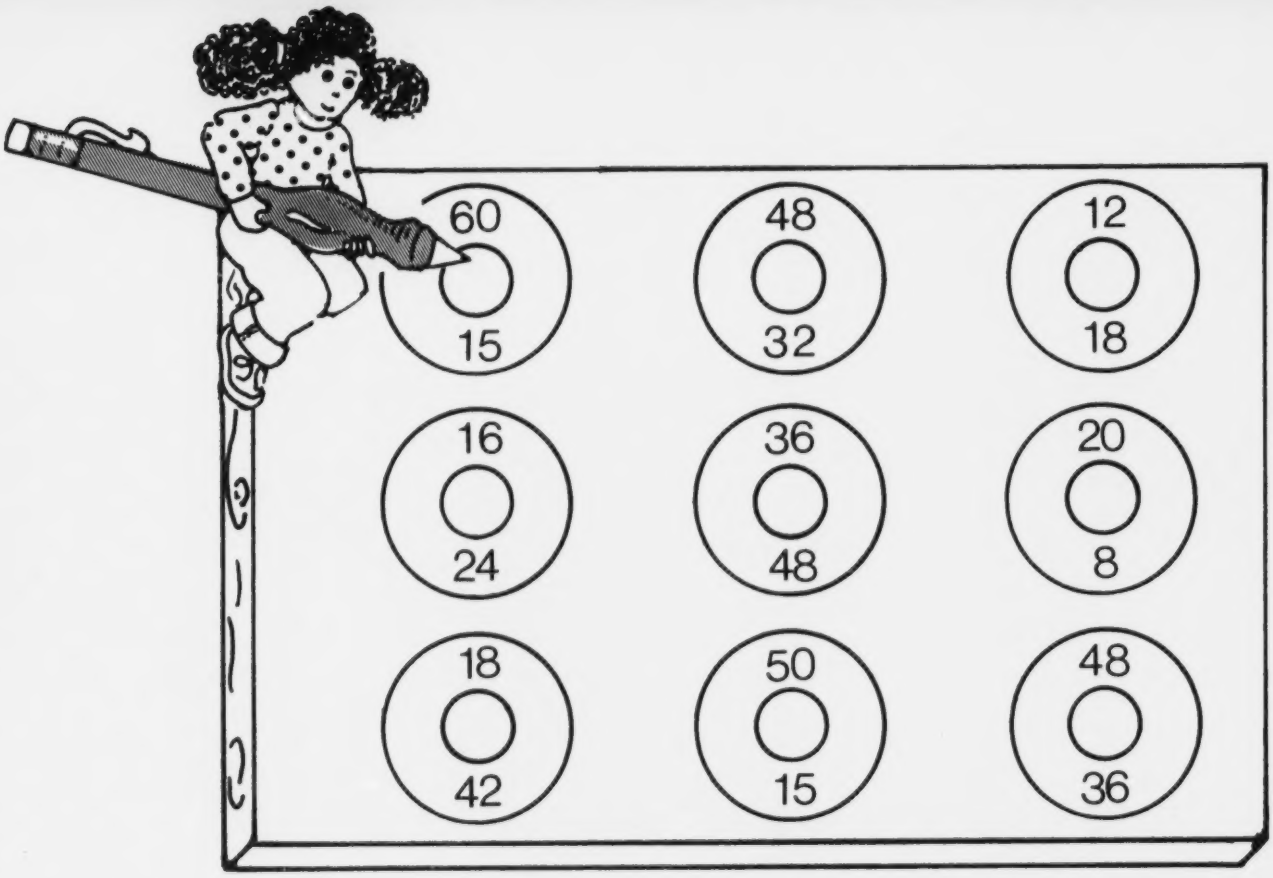
# See The U.S.A.!

**Skill #3120**
**Equivalent Fractions**

**Objective:**
The student will identify equivalent fractions.

**Directions:**
Have the student write each fraction in the sentences above in its simplest form. Then have him find the matching fraction in the above map and trace his route throughout the U.S.A.

***"See the U.S.A.!" taken from Milliken's Math Activities Grade Six***



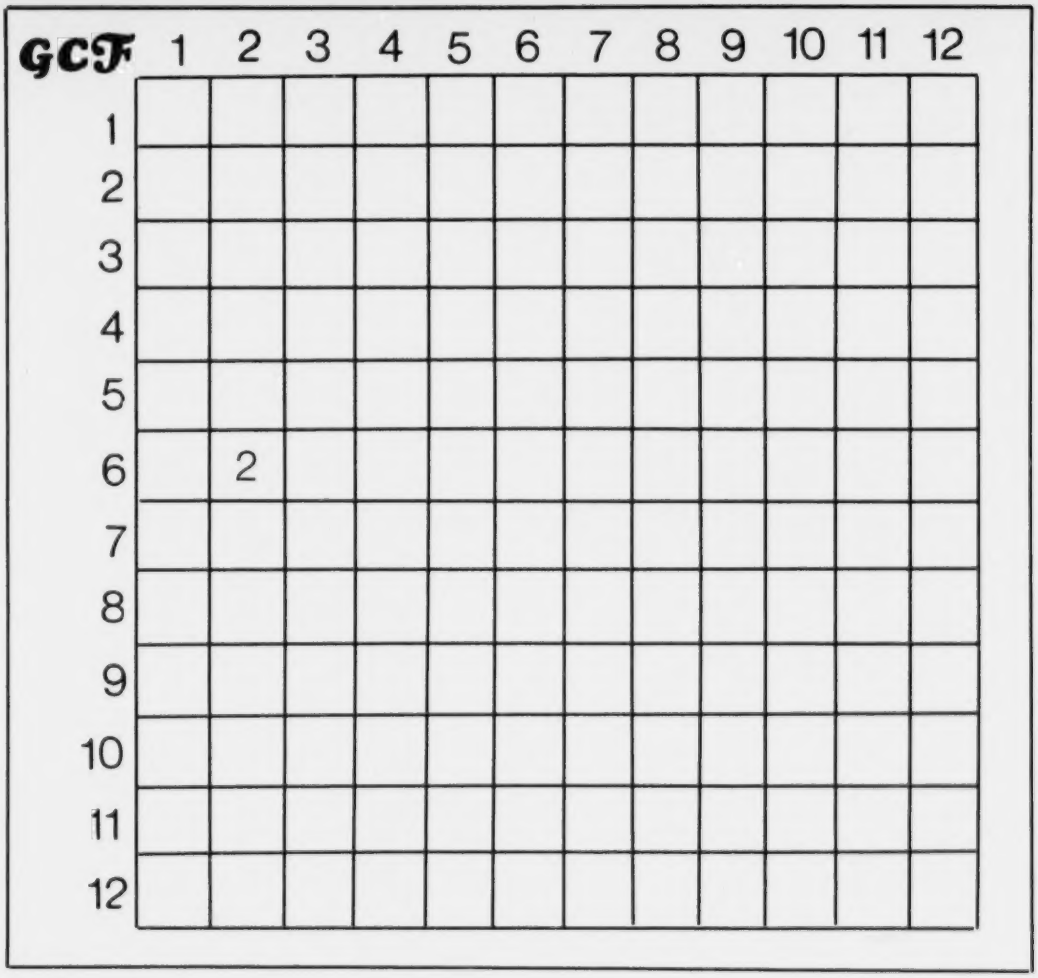

# GCF Tic-Tac-Toe

**Skill #3130**
**Fractions—LCM and GCF**

**Objective:**
The student will find the greatest common factor of two numbers.

**Directions:**
This activity is played like the traditional game of "Tic-Tac-Toe." To claim a circle, a player must give the greatest common factor of the two numbers represented. If he is correct, he places his initial in the small circle. The winner is the first one to claim three circles in a vertical, horizontal or diagonal row.

**Follow-up Activities:**
1. Draw the circles on the gray sheet of a magic slate with a permanent marker, fill in the numbers with the pen provided with the slate, and erase by lifting the sheet from the backing.
2. Have the students draw the playing board with chalk on an outside surface of asphalt or concrete and play the game in the same way.



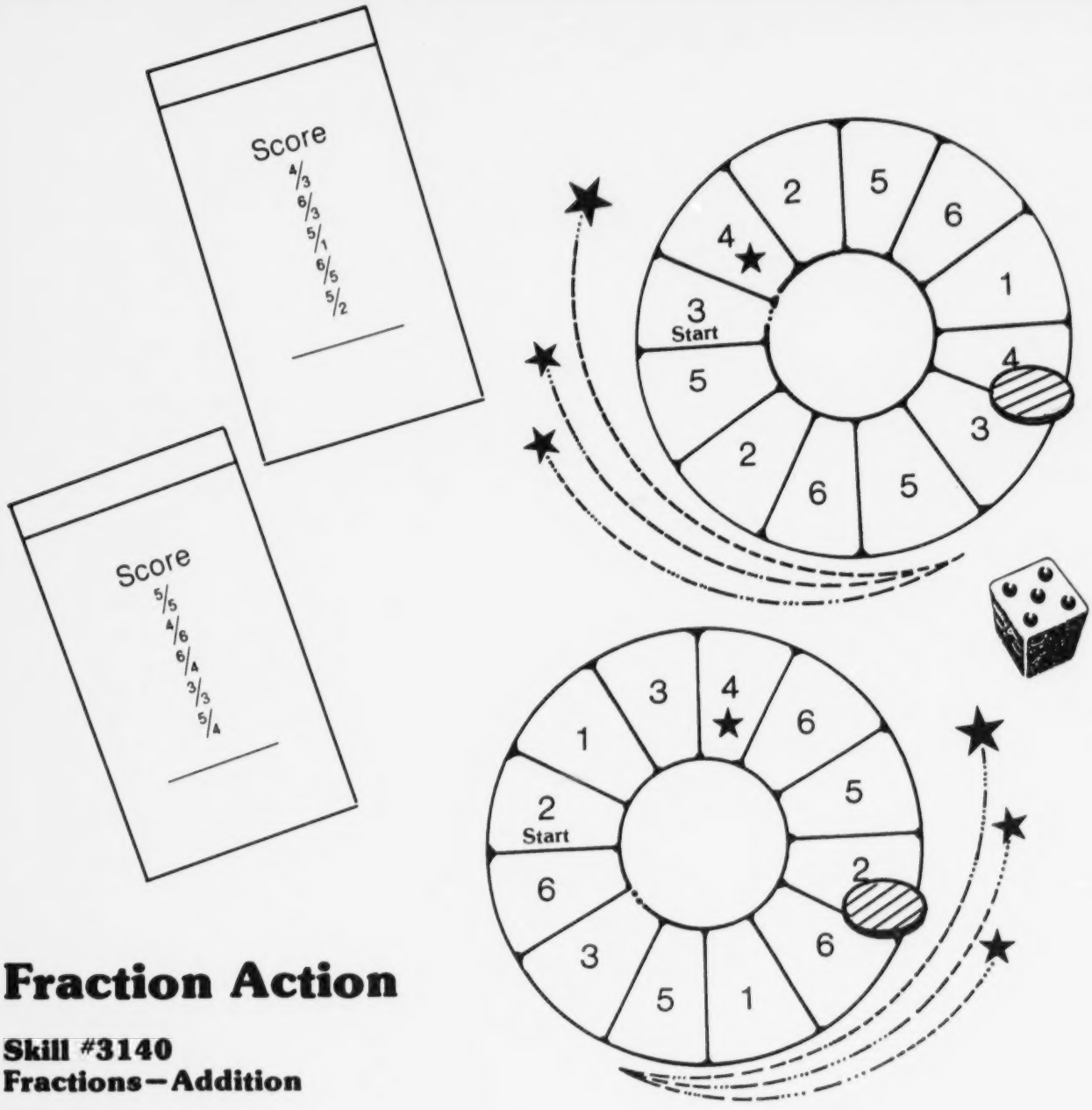

# A Matter Of Factor

**Skill #3130**
**Fractions—LCM and GCF**

**Objective:**
The student will find the greatest common factor.

**Directions:**
The greatest number that is a factor of two or more numbers is known as the greatest common factor or GCF. Have the student complete the table by identifying the greatest common factor for each set of numerals. Six and two have been done as an example.

**Follow-up Activities:**
1. Have the students identify the different patterns found in the completed GCF table. The table can be enlarged and used for a bulletin board display.
2. Have the students use the same grid to identify the LCM (Least Common Multiple).



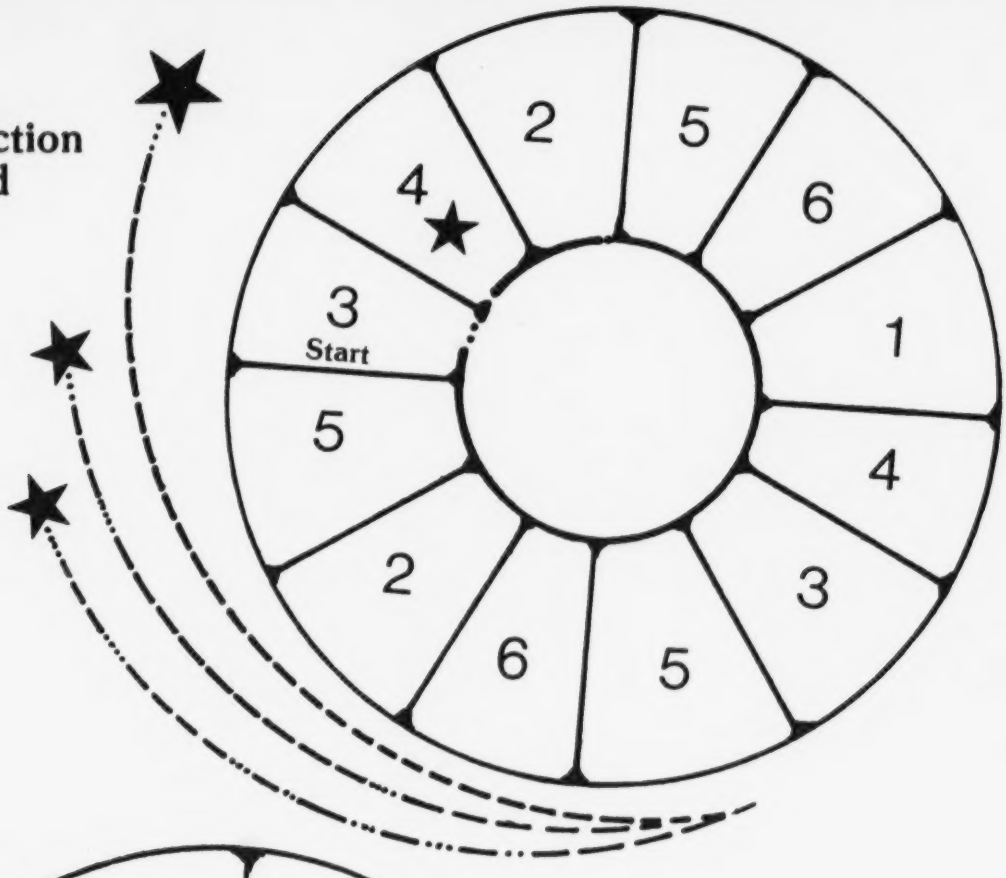

# Fraction Action

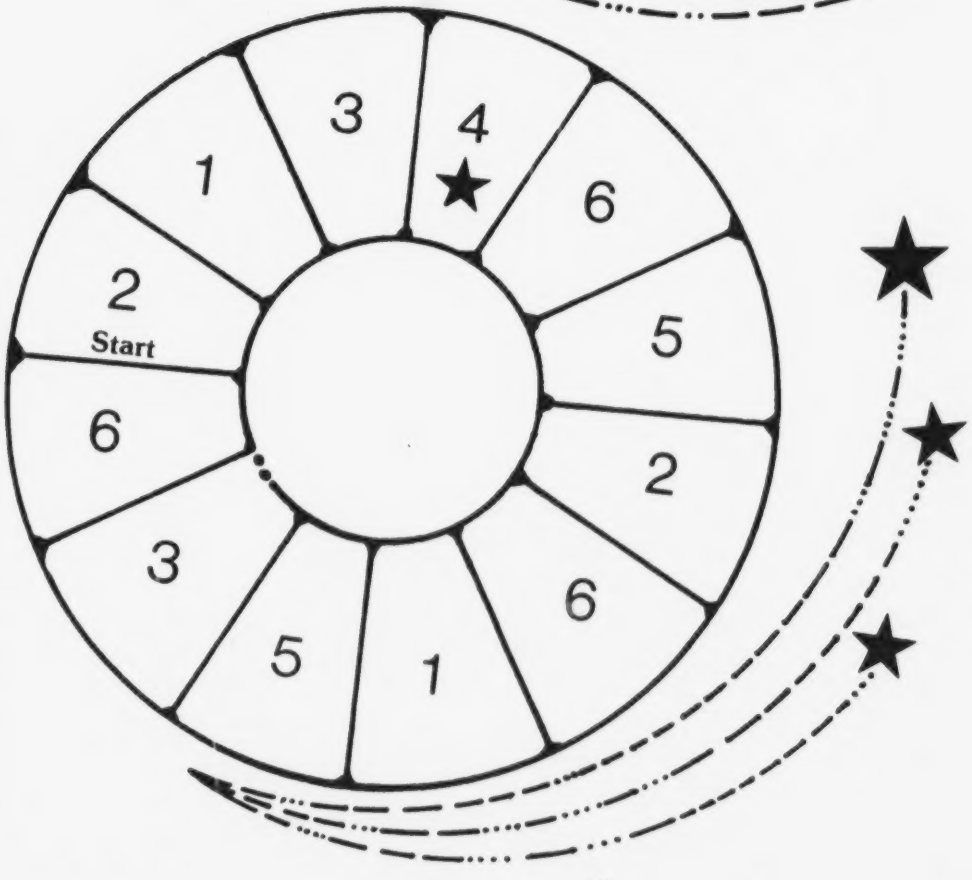
**Skill #3140**
**Fractions—Addition**

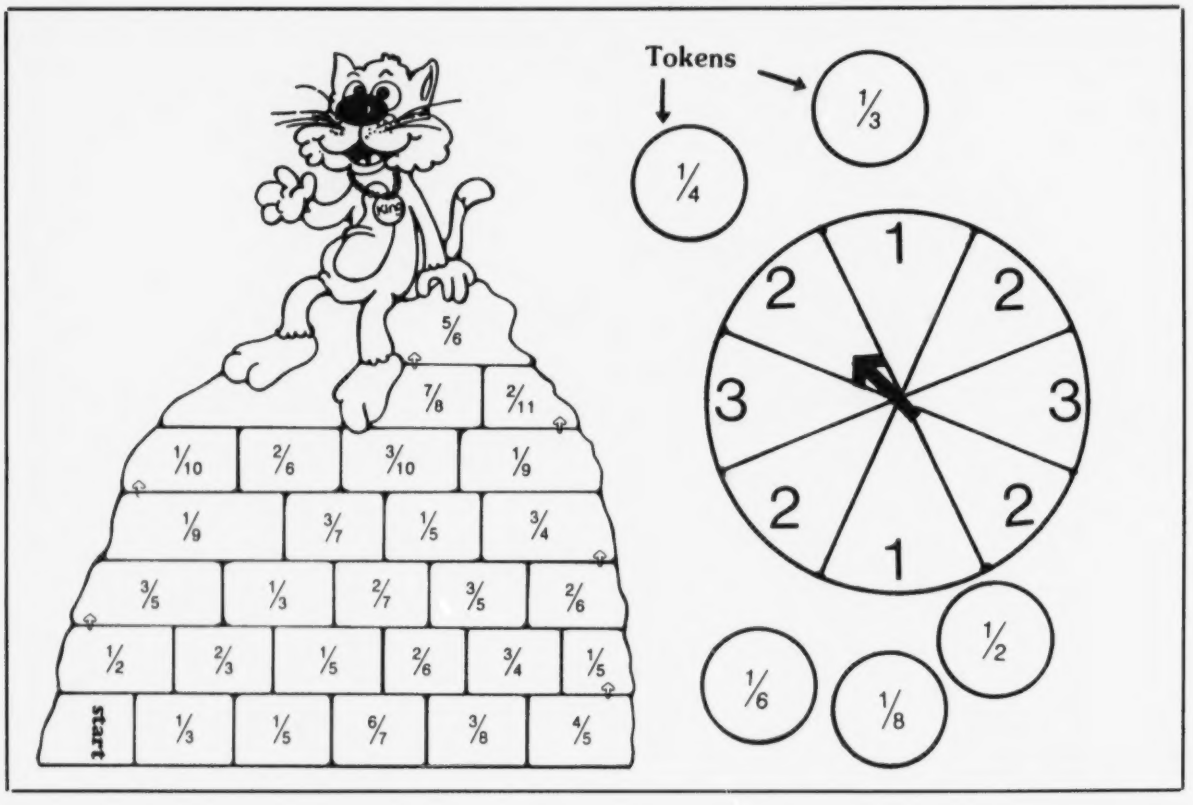
**Objective:**
The student will compute the sum.

**Directions:**
Provide each player with a gameboard like the ones shown above. In alternating turns, each player throws the die and moves the designated number of spaces on his gameboard. Using the number on the die as the numerator and the numeral on the board as the denominator, the player records his points for that turn on his score sheet. If the player lands on a square with a star, he may reverse the positions of numerator and denominator for that turn. The players continue in circle fashion until they have had five turns. After five turns, the points are totaled. The player with the lowest score is the winner.

## Fraction Action Gameboard





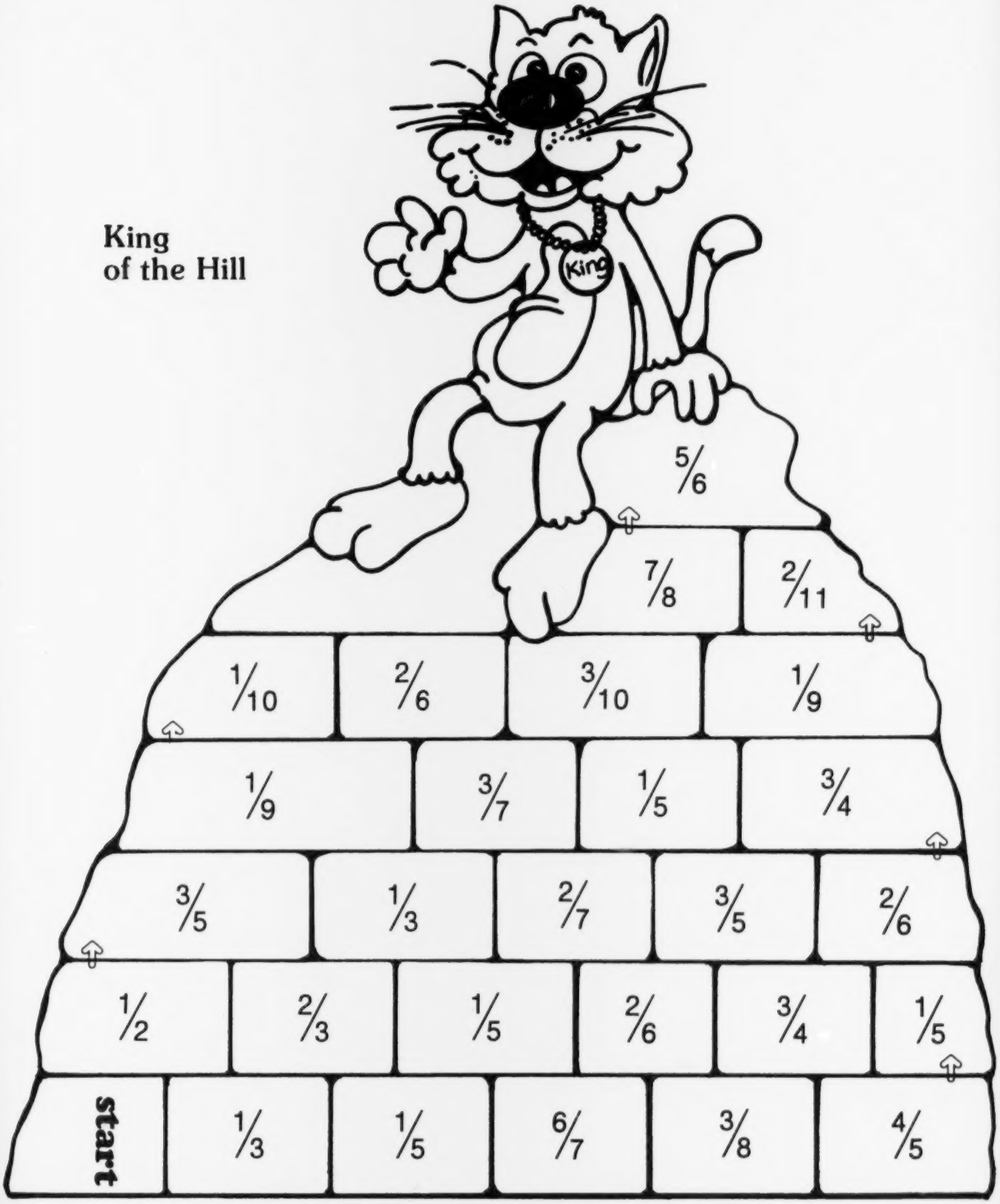

# King Of The Hill

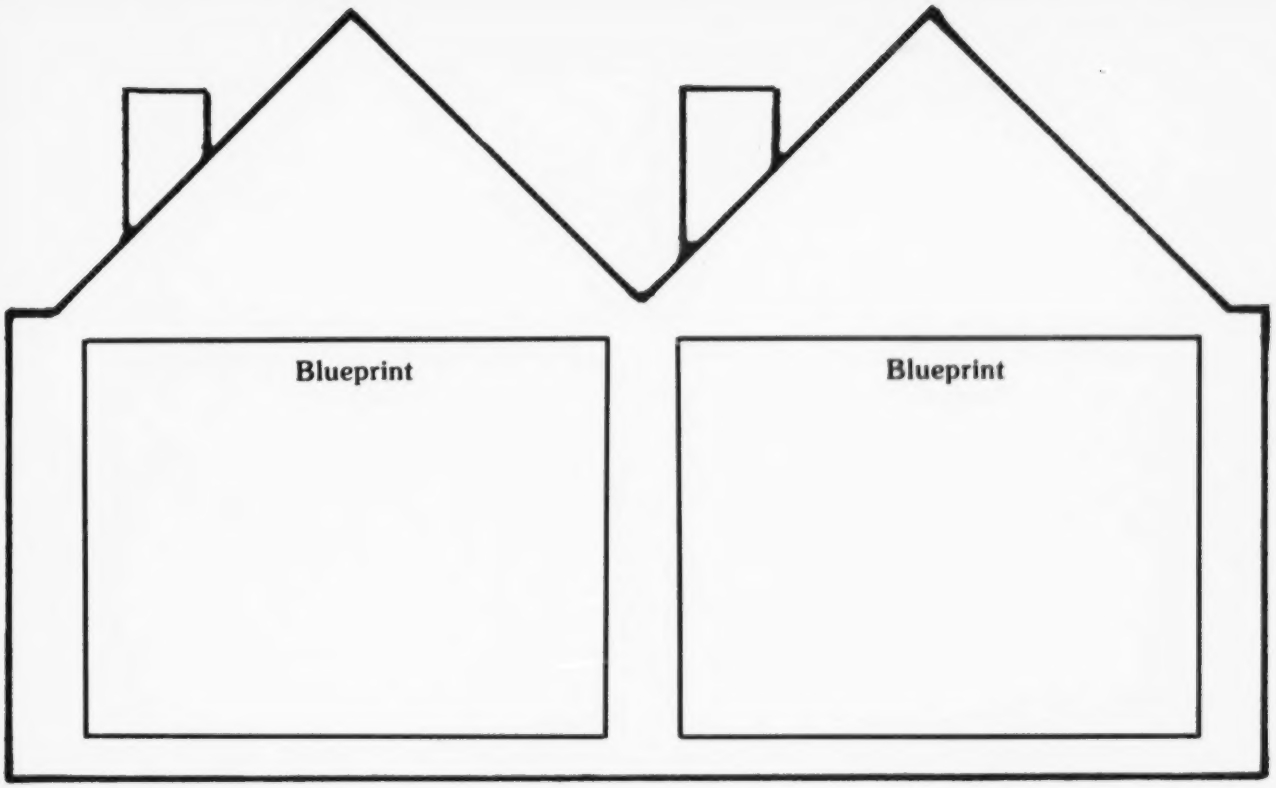
**Skill #3140**
**Fractions—Addition**

**Objective:**
The student will find the sum.

**Directions:**
In alternating turns, each player moves his token the number of spaces indicated by a spin of the arrow. In each turn, he must add the fraction on the gameboard space on which he lands to the one on his token. If he is correct, he adds the face value of the numerator of the sum to his score; if not, he receives no score for that turn. When all players have reached the last space, the one with the highest score is declared "King of the Hill." Players are allowed to use paper and pencils to compute the sums. Someone is needed to check answers as the activity is played.

# King of the Hill






# House That Jack Built

**Skills #3140, #3150**
**Fractions—Addition, Subtraction**

**Objective:**
The student will compute the sum and difference.

**Directions:**
In carpentry, one must have a good understanding of math applications to make measurements, order materials and construct buildings. Have the student sharpen his skills with this activity as he "builds a house." In alternating turns, have each student take a card and work the problem. If he answers it correctly, he may draw the number of lines indicated on the back of the card using the blueprint space for his "construction." If he gets the card with the hammer on it, he may draw the number of lines indicated and receive an additional turn. Remind him to include a kitchen, a bathroom, bedrooms, and a living area. This activity continues until each player has "built his house."

**Numbers to go on back of cards: 1, 2, 3, 2, 3, 1.**

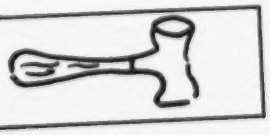
$2\frac{1}{6} - \frac{5}{6} =$

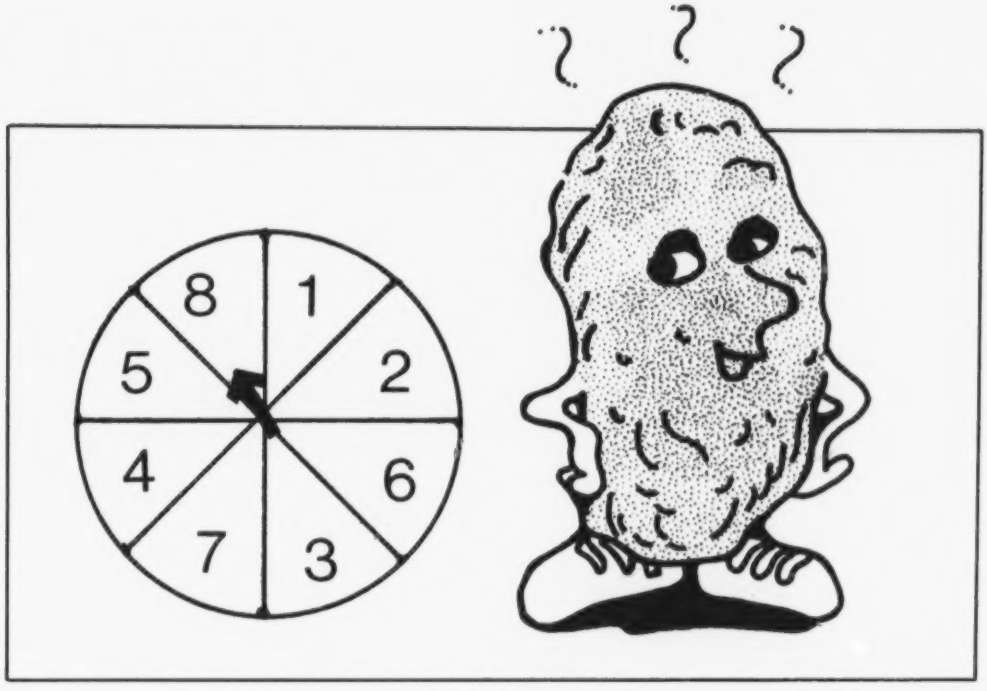
$12\frac{1}{2} + \frac{3}{4} =$

$10\frac{2}{3} - \frac{5}{6} =$

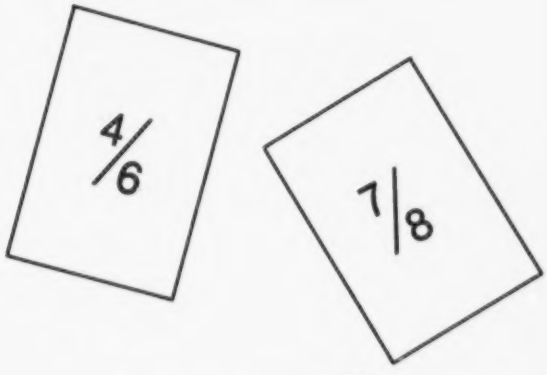
$5\frac{1}{8} - 3\frac{5}{8} =$

$9\frac{1}{4} + 3\frac{1}{2} =$





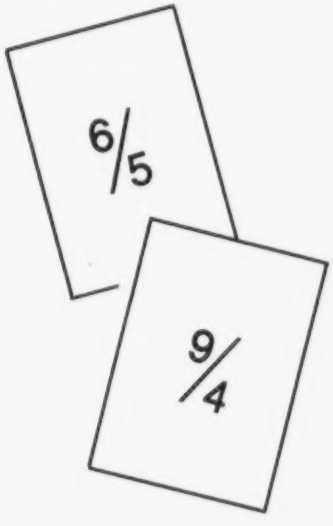

# Hot Potato

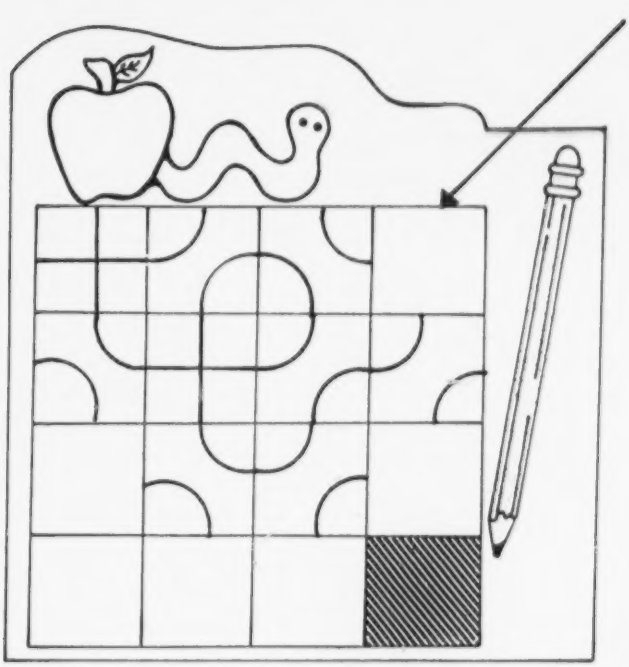


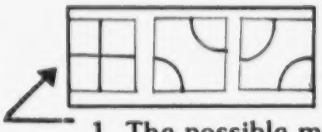

**Skill #3150**
**Fractions—Subtraction**

**Objective:**
The student will compute the difference.

**Directions:**
This activity is played in rounds with a designated time period for each one. In alternating turns, each player draws a card showing either a proper or improper fraction. Using the same denominator, the player spins for a numerator and subtracts the smaller fraction from the larger one; for example, if he draws a card with $\frac{3}{5}$, and he spins a 4, he subtracts $\frac{3}{5}$ from $\frac{4}{5}$. If an answer is equivalent to a whole number, that player must take the "hot potato" card and must keep it until another player has a whole number for an answer. The "hot potato" is then passed on to him. At the end of each round, the player holding the "hot potato" is out of the game. Rounds are played until only one player is left.

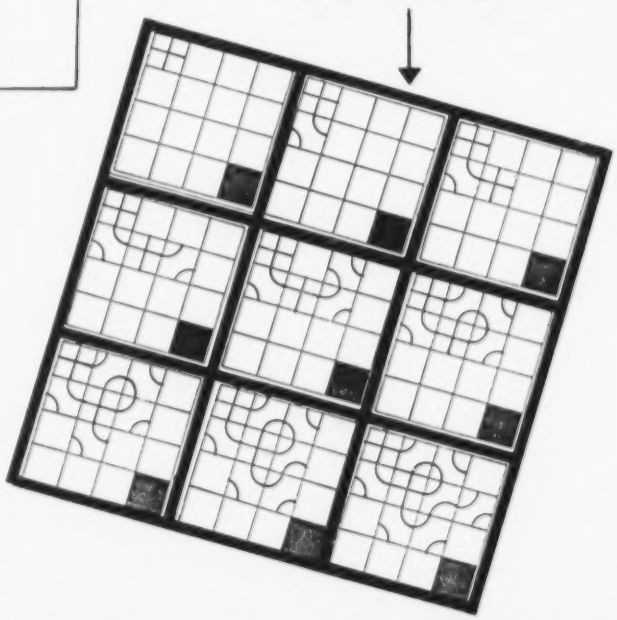




1. The possible marks the student may make.

2. An example of the plays in one game.



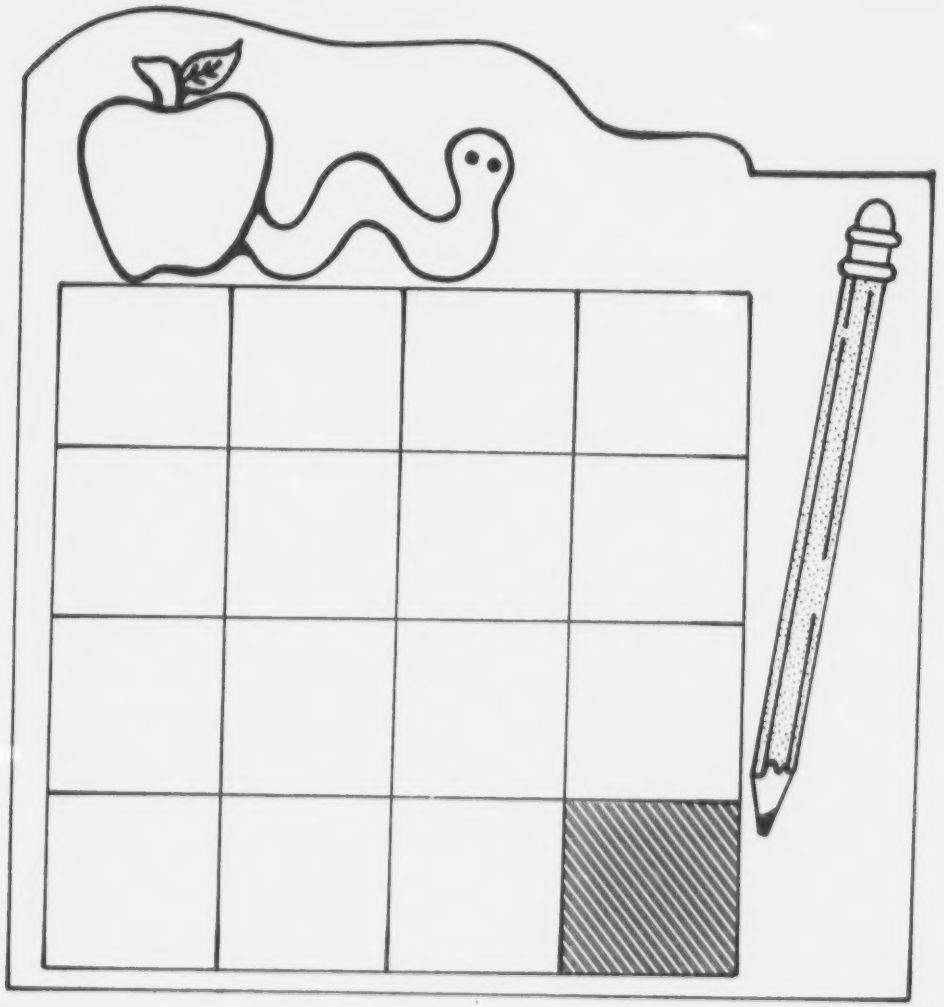
# Slinky Solutions

**Skill #3160**
**Fractions—Multiplication**

**Objective:**
The student will find the product of two fractions.

**Directions:**
Each player draws a card and gives the solution to the problem on it. With each correct response, he marks a square in the following pattern: the first player must make a cross in the top left square and the second player continues the path in an adjacent square by making one of the three marks shown in example 1. The players continue to take turns constructing the path. Each move must extend the path into an adjacent square without crossing an outside border of the grid (example 2). The player who succeeds in extending the path into the lower right corner square or forces his opponent to draw the path across a border, wins.

**A Follow-up Activity:**
Using a catalog, such as L. L. Bean or Sears Roebuck, have the student select various items to take on his summer vacation. Have him write the items and then catalog prices. Then have him calculate the sale price of each item using an indicated reduction, such as $\frac{2}{7}$ off, $\frac{3}{5}$ off or $\frac{1}{3}$ off.



$\frac{1}{5} \times \frac{3}{5} =$

$\frac{1}{3} \times \frac{4}{5} =$

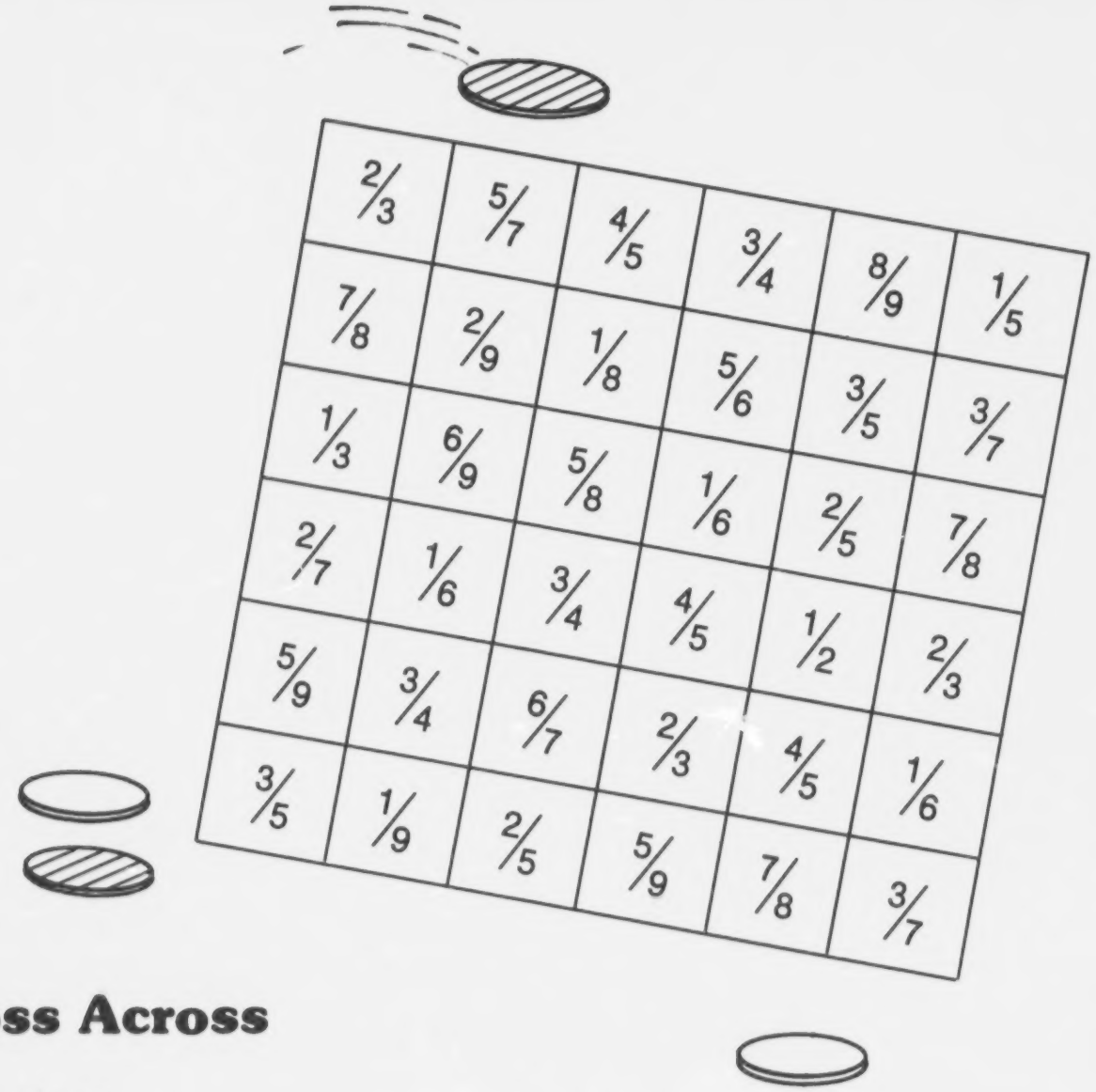
$\frac{2}{5} \times \frac{1}{6} =$

$\frac{6}{7} \times \frac{4}{5} =$

$\frac{2}{3} \times \frac{3}{5} =$

$\frac{1}{2} \times \frac{3}{3}$

$\frac{2}{3} \times \frac{3}{4} =$

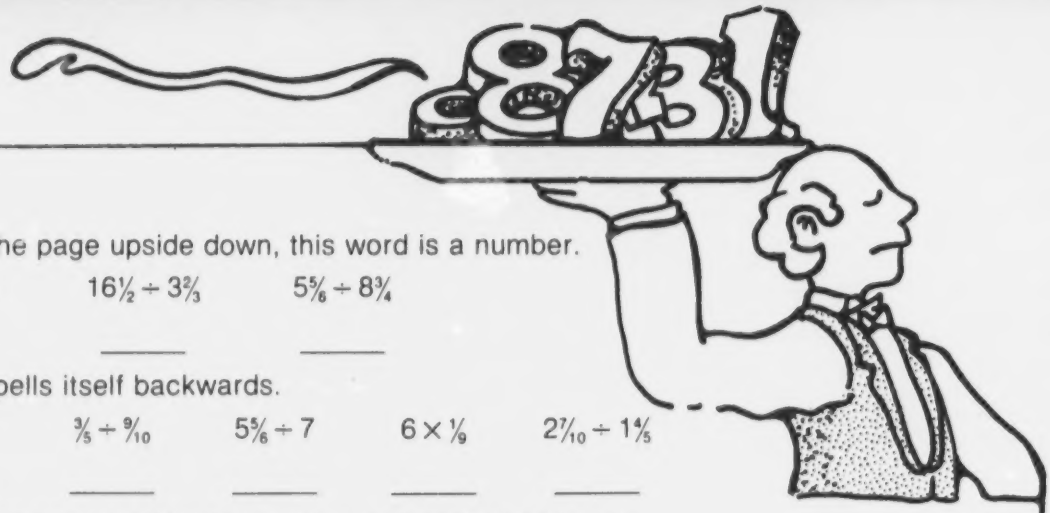



# Toss Across

**Skill #3160**
**Fractions—Multiplication**

**Objective:**
The student will compute the product of two fractions.

**Directons:**
Using the fraction gameboard, each player will take a turn "tossing" two chips onto any two of the squares. He must then multiply the two fractions and give the product. If he is correct,he may choose one of the squares the chips landed on to mark with his initials. That square can no longer be played. The object of the game is to have a player claim four squares in a row. The rows may be horizontal, vertical or diagonal. The game ends in a draw if all of the squares have been claimed and no complete rows have been made.




If you turn the page upside down, this word is a number.

$2\frac{2}{3} \times 2\frac{1}{4}$ $16\frac{1}{2} \div 3\frac{2}{3}$ $5\frac{5}{6} \div 8\frac{3}{4}$

_____ _____ _____

This word spells itself backwards.

$\frac{1}{4} \times 6$ $\frac{3}{5} \div \frac{9}{10}$ $5\frac{5}{6} \div 7$ $6 \times \frac{1}{9}$ $2\frac{7}{10} \div 1\frac{4}{5}$

_____ _____ _____ _____ _____

If you turn the page upside down, this word spells itself again.

$\frac{2}{3} \times \frac{2}{3}$ $1\frac{4}{5} \times 3\frac{2}{3}$ $\frac{3}{8} \times 12$ $1\frac{1}{6} \times 1\frac{1}{7}$ $1\frac{1}{18} \div 2\frac{3}{8}$

_____ _____ _____ _____ _____

This word spelled forward is part of a constellation and backward is a group of rodents.

$\frac{1}{2} \times \frac{8}{9}$ $\frac{9}{10} \div \frac{3}{4}$ $\frac{3}{10} \div \frac{2}{5}$ $3\frac{3}{8} \div 2\frac{1}{4}$

_____ _____ _____ _____

If you turn the page upside down and hold it up to a mirror, this word spells itself again.

$\frac{4}{5} \times \frac{5}{8}$ $1\frac{1}{3} \times \frac{2}{3}$ $3\frac{1}{3} \times 2\frac{1}{2}$ $5\frac{1}{3} \div 2\frac{2}{9}$

_____ _____ _____ _____

If you turn the page upside down and hold it up to a mirror, this word spells itself again.

$3\frac{1}{9} \div 3\frac{1}{2}$ $6\frac{1}{4} \div \frac{3}{4}$ $1\frac{1}{5} \times 2$ $1\frac{1}{8} \div \frac{1}{4}$ $\frac{4}{9} \div \frac{1}{2}$ $\frac{1}{4} \times 2\frac{2}{3}$

_____ _____ _____ _____ _____ _____

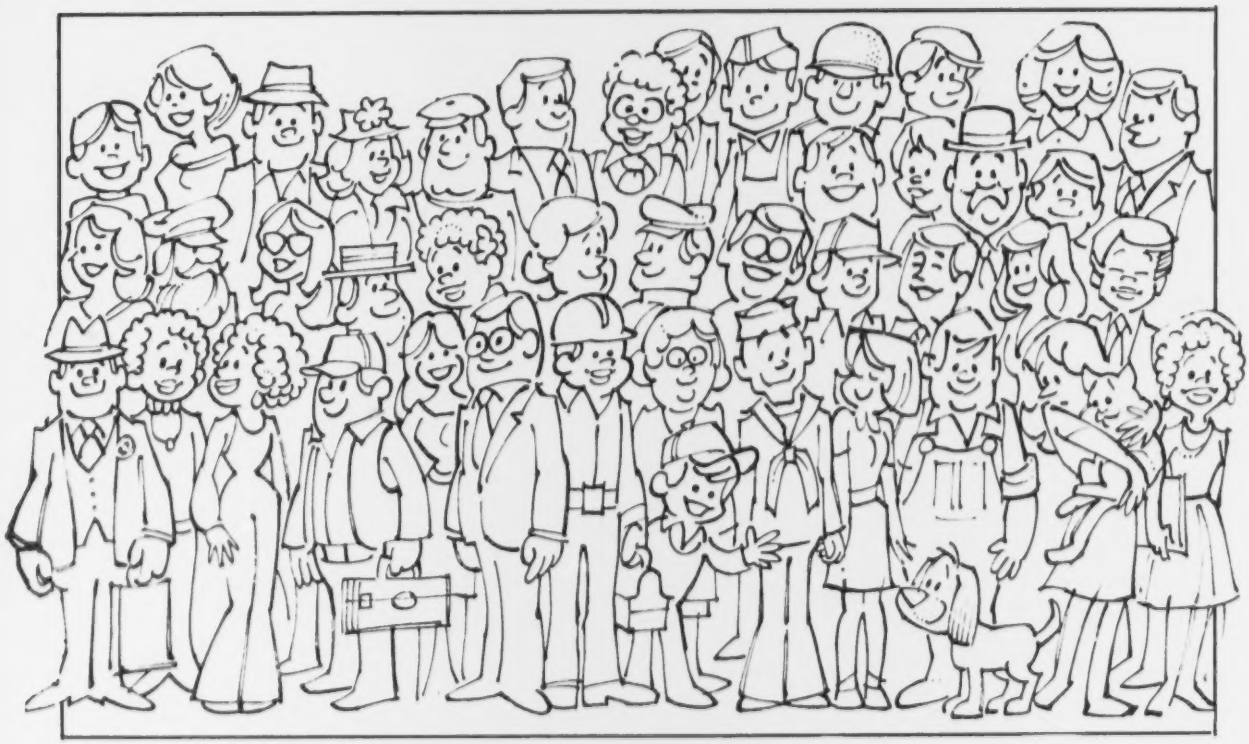
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $1\frac{1}{3}$ | $\frac{2}{3}$ | $\frac{3}{4}$ | $4\frac{1}{2}$ | $2\frac{2}{5}$ | $1\frac{1}{5}$ | 6 | $6\frac{3}{5}$ | $8\frac{1}{3}$ | $\frac{5}{6}$ | $\frac{4}{9}$ | $\frac{8}{9}$ | $1\frac{1}{2}$ |
| M | E | A | I | O | T | L | W | H | F | S | C | R |

# Number Please

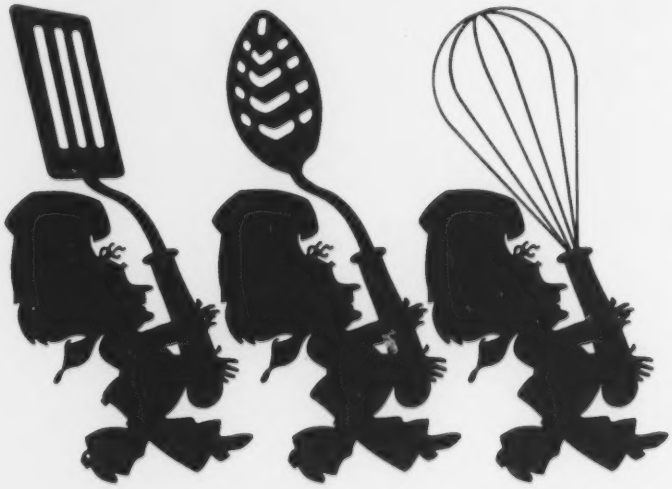
**Skills #3160, #3170**
**Fractions—Multiplication, Division**

**Objective:**
The student will compute the product and quotient.

**Directions:**
To answer the riddles, have the student find the product or quotient. Then have him match each answer with its letter in the riddle table.



# A Bunch For Brunch



**Skill #3180**
**Fractions—Applications**

**Objective:**
The student will identify an arithmetic procedure for solving a problem and solve it.

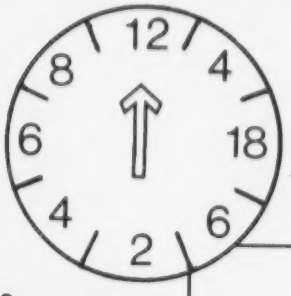
**Directions:**
Have the student plan a brunch for a bunch. Provide the students with brunch recipes like the ones given on the next page. Add a spinner showing different numbers of people. Have the students spin to determine the number invited to brunch and then rewrite the recipes accordingly.

# A Bunch For Brunch

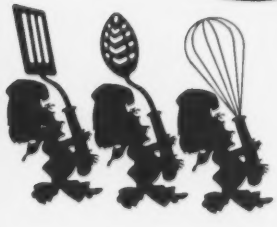
### Little Egg Souffles

2 eggs, beaten
1 tablespoon commercial sour cream
1 teaspoon water
½ teaspoon baking powder
Dash of fines herbes
4 to 5 drops of hot sauce
½ cup (2 ounces) shredded Cheddar cheese

Combine all ingredients except cheese; mix well. Stir in cheese. Pour into two greased 6-ounce custard cups or individual souffle' dishes. Bake at 350° for 12 to 15 minutes or until set. Yield: 2 servings.




Spin for numbers of people.



### Cocoa-Coffee

1 cup instant cocoa mix
⅓ cup instant coffee granules
4 cups boiling water
Whipped cream

Combine cocoa mix, instant coffee, and boiling water; stir until coffee granules dissolve.

Garnish each serving with whipped cream. Yield: 1 quart.

### Sausage Waffles

½ pound mild bulk pork sausage
2 eggs, beaten
1 cup milk
1 tablespoon butter or margarine, melted
1¾ cups all-purpose flour
1 tablespoon baking powder
½ teaspoon salt

Crumble sausage into a medium skillet; cook over medium heat until sausage is browned. Drain well on paper towels, and set aside.

Combine eggs, milk, and butter in a medium-size bowl; mix well. Combine dry ingredients; add to the liquid mixture, mixing well.

Pour half of batter into a hot, lightly oiled waffle iron. Sprinkle half of sausage evenly over batter. Cook about 5 minutes or until done. Repeat procedure with remaining batter and sausage.

Yield: eight 4-inch waffles.

### Spanish Scrambled Eggs

½ pound bacon
1 dozen eggs, beaten
1 (4-ounce) can chopped green chilies, drained
1 (4-ounce) jar diced pimiento, drained
1 bunch green onions, finely chopped
1 large tomato, chopped
1 (4½ ounce) jar sliced mushrooms, drained
¼ cup butter or margarine
Tomato roses

Cook bacon in a large skillet until crisp. Remove bacon; crumble and set aside. Discard drippings.

Combine eggs, chiles, and pimiento; set aside. Saute' onion, tomato, and mushrooms in butter in skillet until tender. Add egg mixture; cook over medium heat, stirring often, until eggs are firm but still moist. Spoon onto serving platter; garnish with crumbled bacon and tomato roses. Yield: 6 servings.

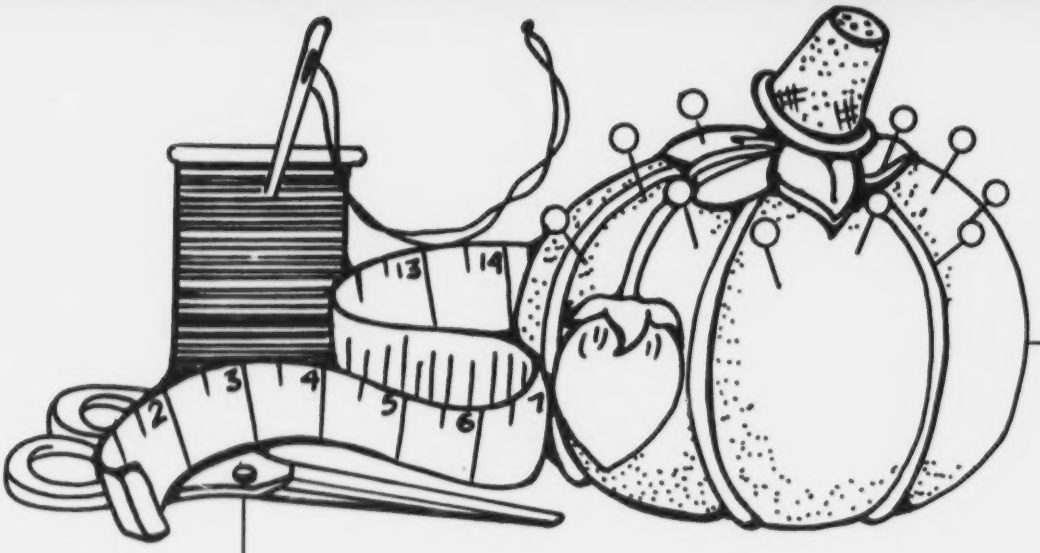
### Grits Patties

⅓ cup uncooked regular grits
2 tablespoons self-rising flour
¼ teaspoon salt
⅛ teaspoon pepper
1 egg, slightly beaten
Hot vegetable oil

Cook grits according to package directions. Stir in flour, salt, pepper, and egg; mix well.

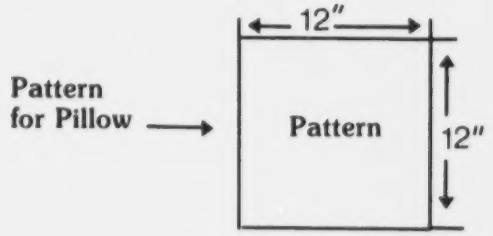
Drop mixture by tablespoonfuls into hot oil. Gently flatten with spatula. Brown on both sides; drain on paper towels. Serve patties immediately.

Yield: 8 servings.



**Answer Key**

| Width of Fabric | | | |
|---|---|---|---|
| 36" | ⅓ yd. | ⅔ yd. | 1⅓ yd. |
| 45" | ⅓ yd. | ⅔ yd. | 1⅓ yd. |
| 60" | ⅓ yd. | ⅔ yd. | 1⅔ yd. |
| Number of Pillows | 1 | 3 | 5 |




| Fabric Width | Number of Pillows: 1 | 3 | 5 |
|---|---|---|---|
| 36" | | | |
| 45" | | | |
| 60" | | | |

# Sew What?

**Skill #3180**
**Fractions—Applications**

**Objective:**

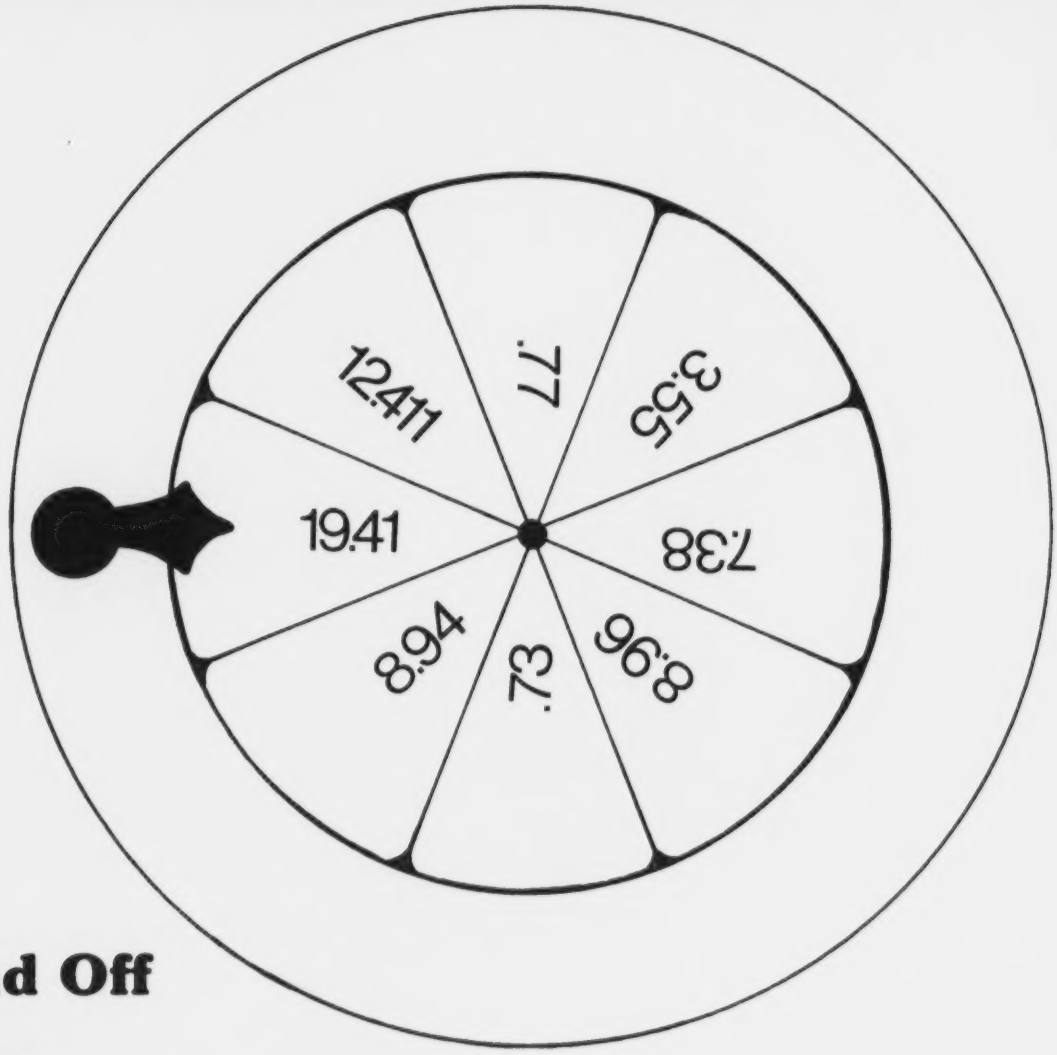
The student will identify the answer in problems involving fractions.

**Directions:**

Have the student use the pattern provided to figure the amount of fabric he would need to make a throw pillow. Have him enter his calculations in the chart provided.

**Follow-up Activities:**

1. Have the student calculate the finished size of the pillow if he constructed it using ⅝" seams.
2. Have the student calculate the amount of fabric required to construct a pillow for each member of the class.



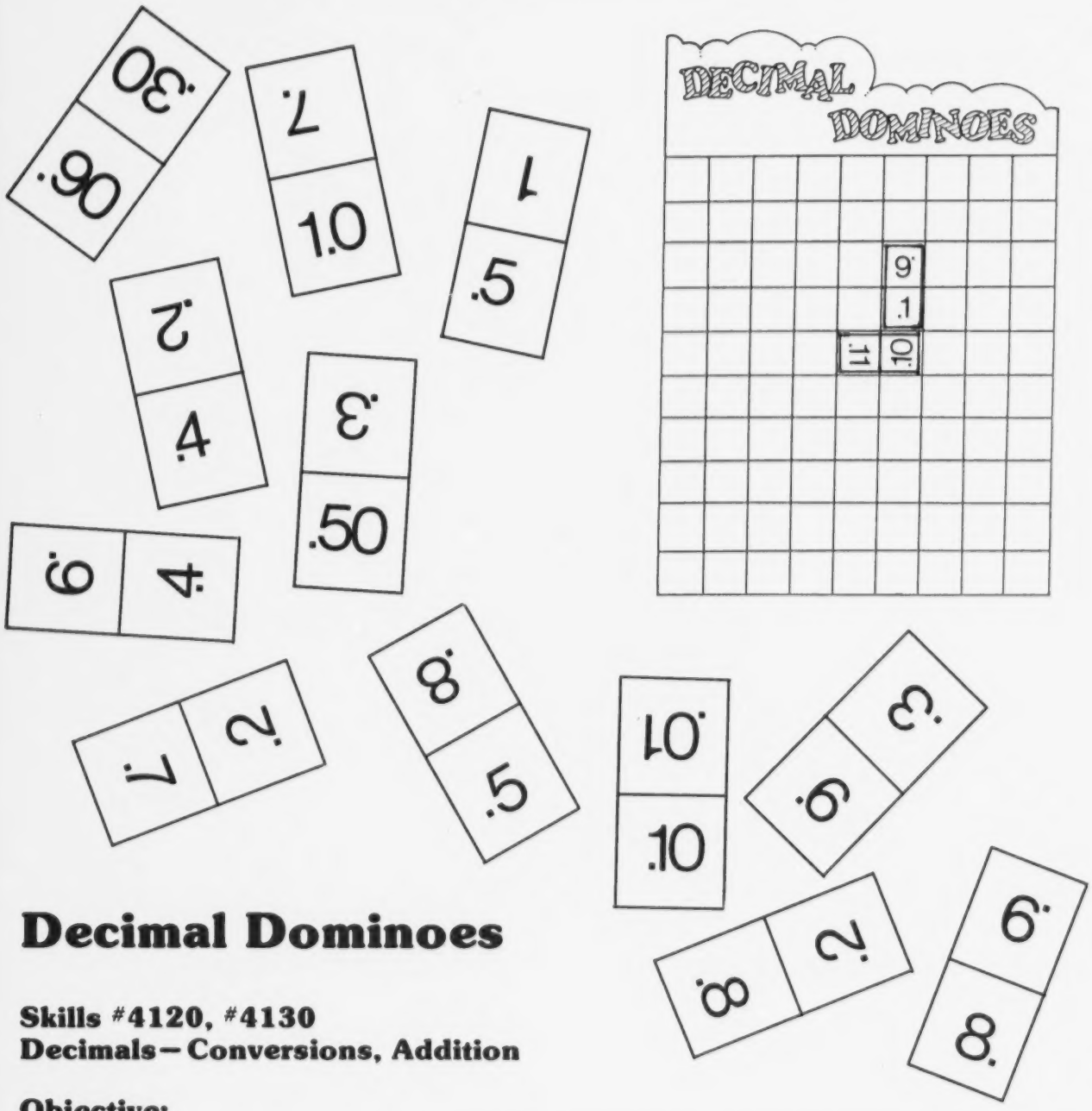

# Round Off

**Skill #4110**
**Decimals—Basic Characteristics**

**Objective:**
The student will round off decimal fractions to the nearest tenth.

**Directions:**
Two players will take turns spinning the wheel, rounding off the designated decimal fraction to the nearest tenth and recording it on an individual score sheet. After eight rounds, with each player having eight spins, the eight numbers are totaled. The player with the larger number is the winner of the game.

**Follow-up Activities:**
1. Write a list of decimal fractions on the board, for example, .439, .11, .171, .072. Have the students see who is first to put them in order from least to greatest value.
2. Have the students illustrate decimal fractions on an abacus.




# Decimal Dominoes

**Skills #4120, #4130**
**Decimals—Conversions, Addition**

**Objective:**
The student will identify equivalent decimal fractions and compute the sum.

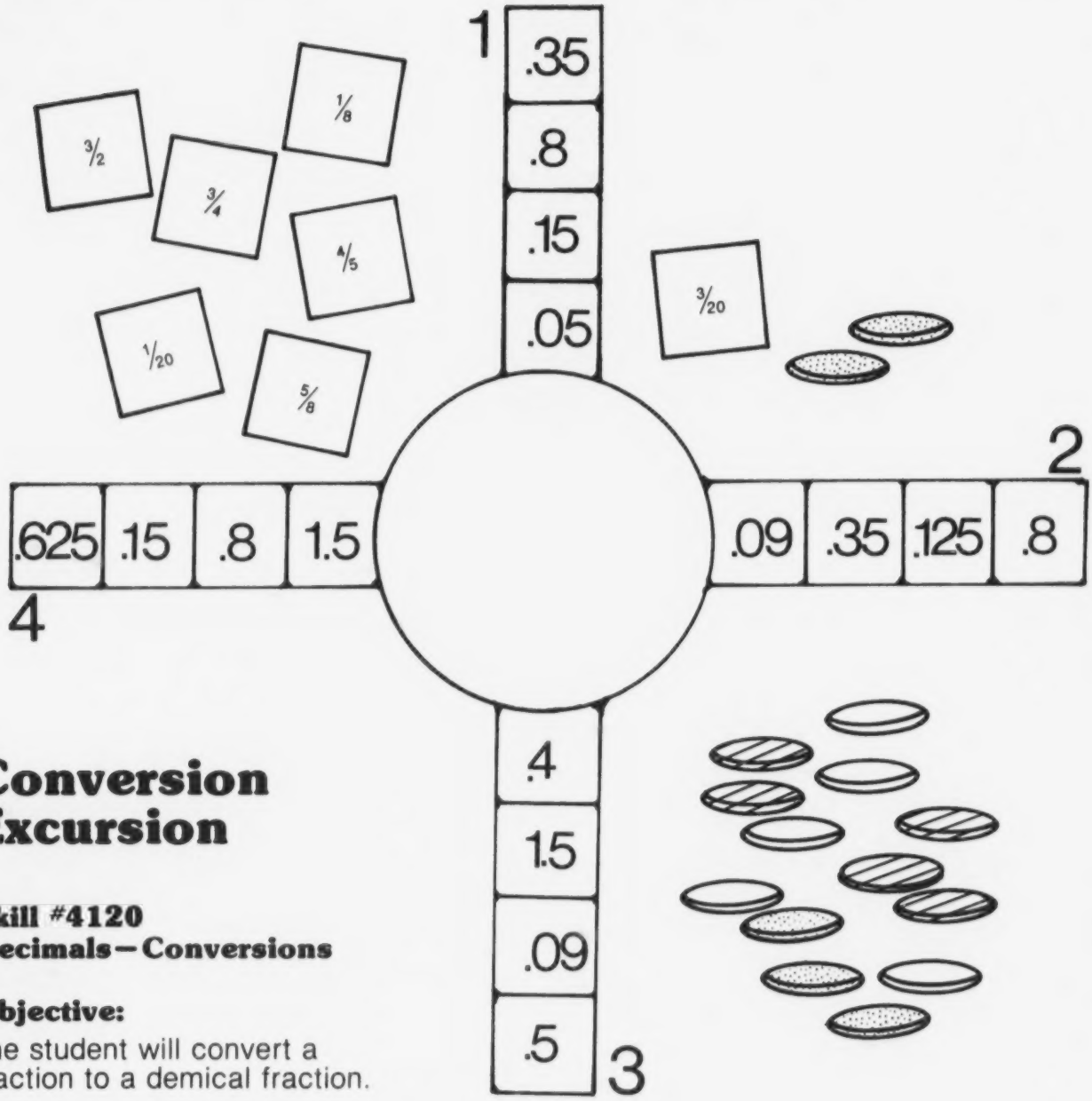
**Directions:**
One domino is placed face up in the center of the playing board, and the rest, turned face down, are divided between two players. In alternating turns, each player may play a domino matching like or equivalent decimal fractions as shown in the example above. The score for each play is determined by adding the decimal fractions on the end dominoes; for example, the score for the play shown would be .11 + .6 = .71. When all dominoes have been played, or when no plays are possible, scores are totaled to determine the winner.

# DECIMAL DOMINOES

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | Double Score | | | | | Double Score | | |
| | | | | | | | | |
| | | | Double Score | | | | Triple Score | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | Triple Score | | | | | | |
| | | | | | | Double Score | | |
| | | | | | | | | |



63

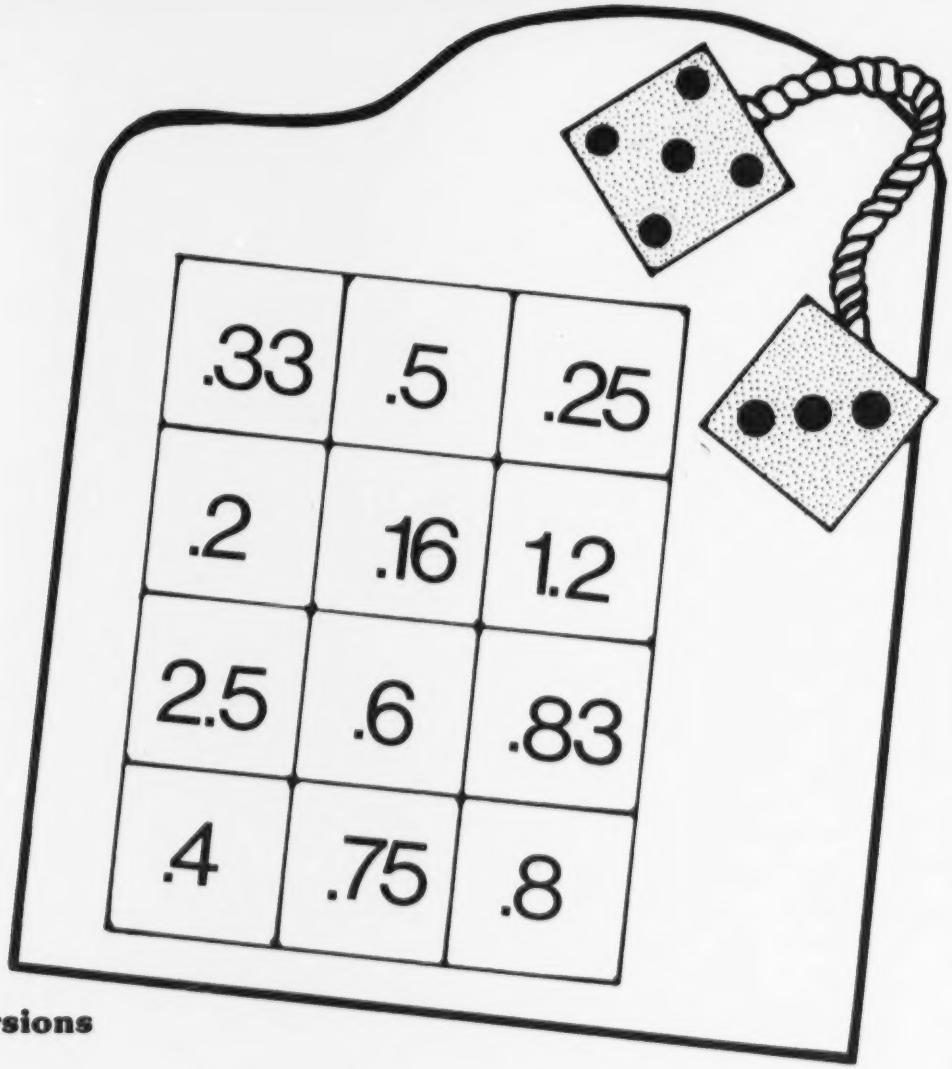



# Conversion Excursion

**Skill #4120**
**Decimals—Conversions**

**Objective:**
The student will convert a fraction to a demical fraction.

**Directions:**
This activity requires four players and another person to draw the cards. To begin, each player will choose a row and five colored tokens to use as markers. The designated person draws from the stack and reads the fraction shown on the card. Each player must then convert it to a decimal fraction. If he has the answer in his row, he places one of his markers on that space. The first player to have all five spaces occupied must then try to get his tokens to the center circle. In order to get there, each player takes a turn converting each decimal fraction in his row back to a fraction. For each correct answer, he places his token in the circle. The first player to get his five tokens in the circle is the winner.




# Thrice The Dice

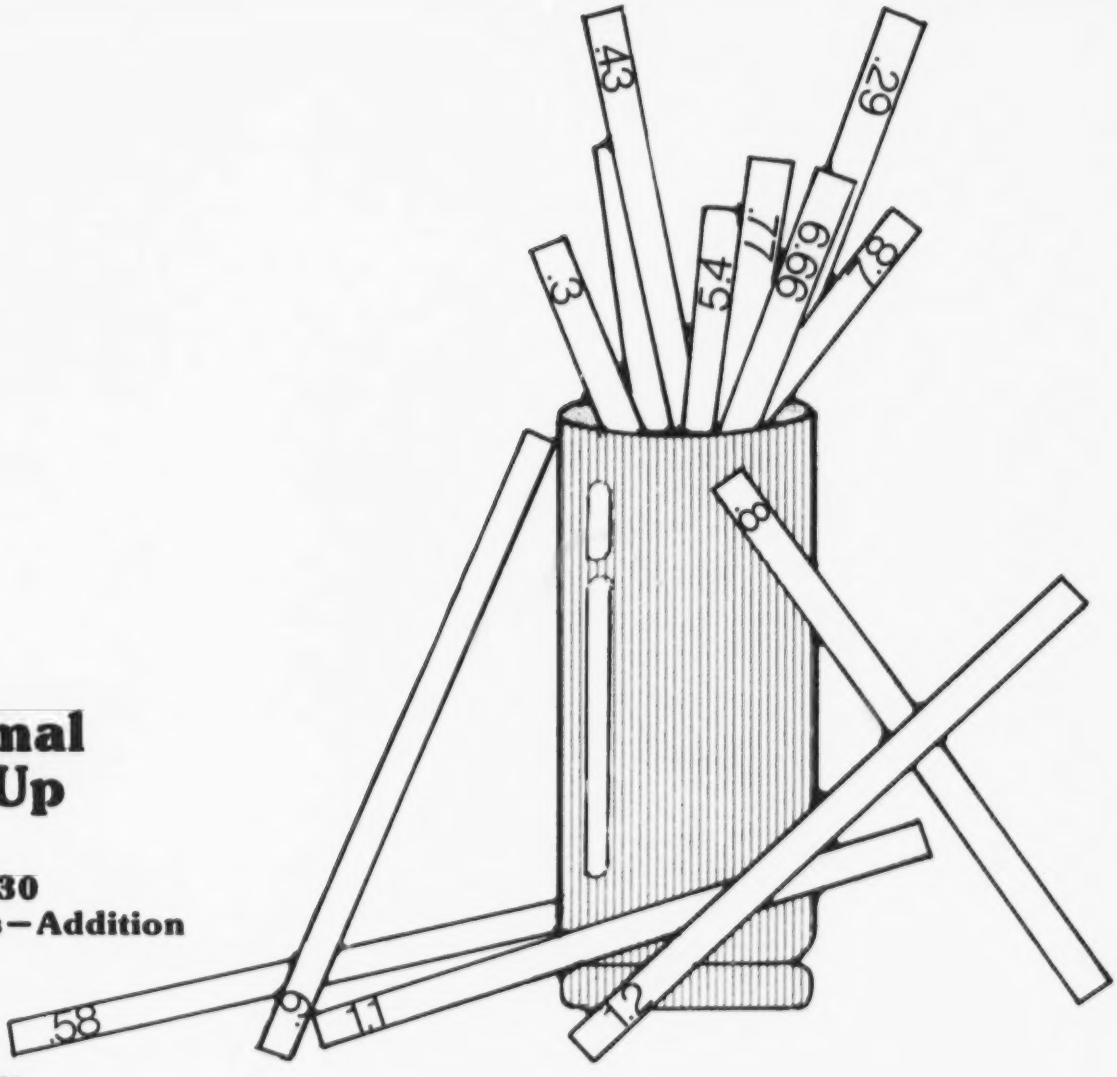
**Skill #4120**
**Decimals—Conversions**

**Objective:**
The student will convert a fraction to a decimal fraction.

**Directions:**
In alternating turns, each player may roll a pair of dice up to three times. Using the number on one die as the denominator and the number on the other die as the numerator, the player converts the fraction to a decimal fraction. If that decimal fraction is on the activity board, the player may claim it by placing one of his markers on that square. The player with the most squares claimed at the end of the game is declared the winner.

**Follow-up Activities:**
1. Make a set of cards each with a fraction or decimal fraction used in the activity above. Shuffle them and spread them out face down. Have the students play "Concentration."
2. Shuffle the cards from follow-up one and turn them face down in two stacks. Have the students, in alternating turns, draw one from each stack and determine if they are equivalent.

# Decimal Pick Up




**Skill #4130**
**Decimals—Addition**

**Objective:**
The student will compute the sum.

**Directions:**
Have one student hold the decimal sticks together and then release them letting them fall randomly. The first student picks up sticks one at a time and continues his turn until one of the adjacent sticks is moved. At that time, it becomes another player's turn. After all sticks have been collected, each player calculates his score by adding the decimal fractions on his sticks. The player with the highest score wins.

**Follow-up Activities:**
1. Write a whole number on the chalkboard. Instruct the students to select the three of their decimal sticks whose sum is closest to the given number.
2. Have each player group his sticks by colors and calculate his score by adding the decimal fractions on his sticks in each color group. The player with the color group representing the highest score is the winner.

| | | | | | | |
|---|---|---|---|---|---|---|
| .8 | 0 | .24 | .6 | 4 | .50 | 6 |
| .24 | .9 | 1 | .25 | .12 | .36 | .12 |
| .20 | 2 | .5 | .7 | .16 | .2 | .8 |
| .10 | .3 | .25 | .18 | .4 | 3 | .6 |
| 0 | 4 | 1 | .09 | 0 | 2 | .3 |
| .9 | 2 | 5 | .5 | .36 | 1 | .20 |

# Mark Twain

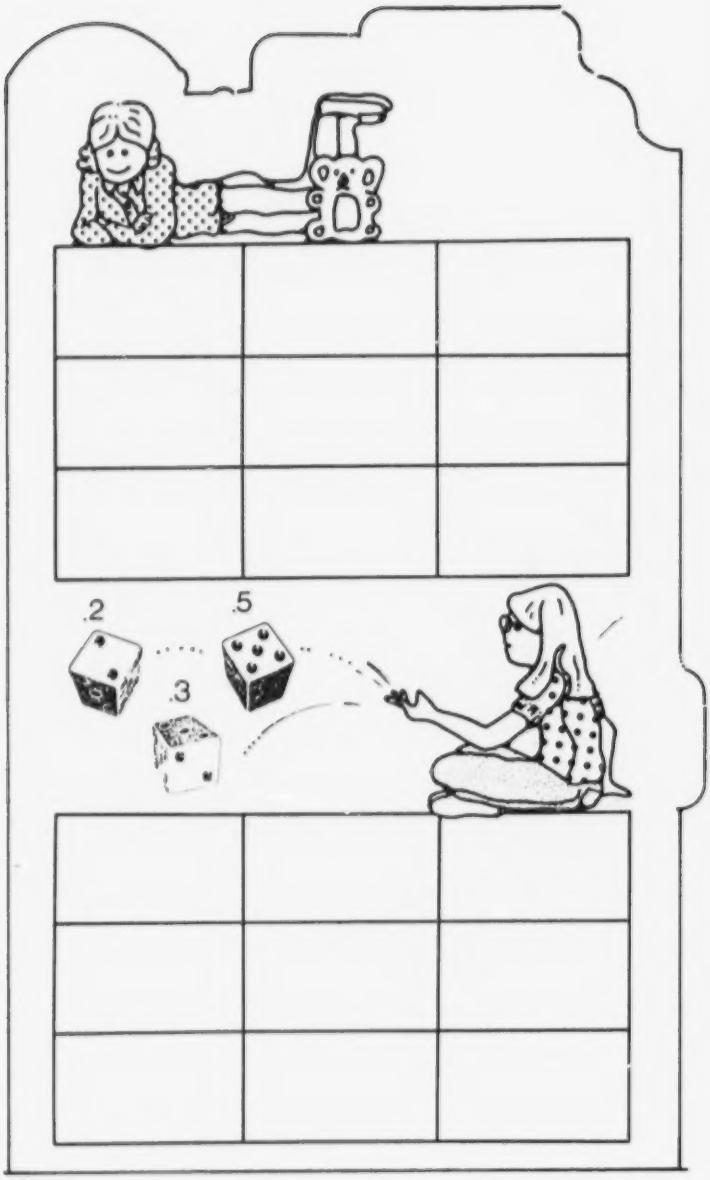
**Skills #4130, #4140, #4150, #4160**
**Decimals—Addition, Subtraction, Multiplication, Division**

**Objective:**

The student will find the sum, the difference, the product and the quotient using decimal fractions.

**Directions:**

In alternating turns, each player rolls two dice. The dots on the dice will represent tenths expressed in decimal form. The player must decide whether to add, subtract, multiply or divide the two decimal fractions represented to get a numeral that is on the board. If he does, he places a marker on that space. If at any time it is not possible to cover a space, play passes to the next player. Each time a player has placed his two markers in a horizontal, vertical or diagonal row, he calls out "Mark Twain," and receives five points. When one player has used all of his markers, the game is over and the high scorer wins.



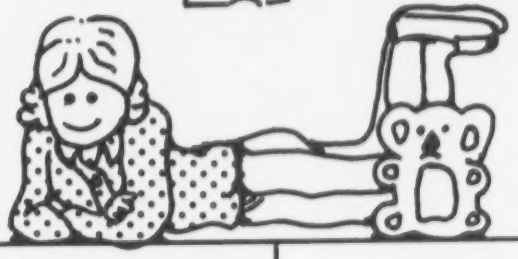

# The Triples Game

**Skills**
**#4130, #4140, #4150**

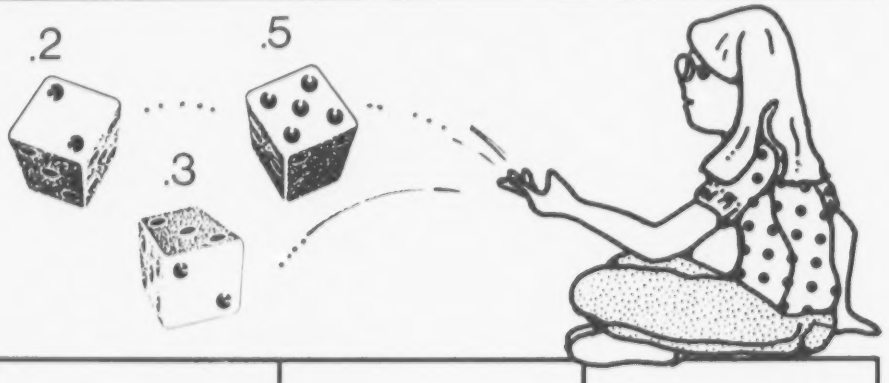
**Decimals—Addition, Subtraction, Multiplication**

**Objective:**
The student will compute the sum, difference or product.

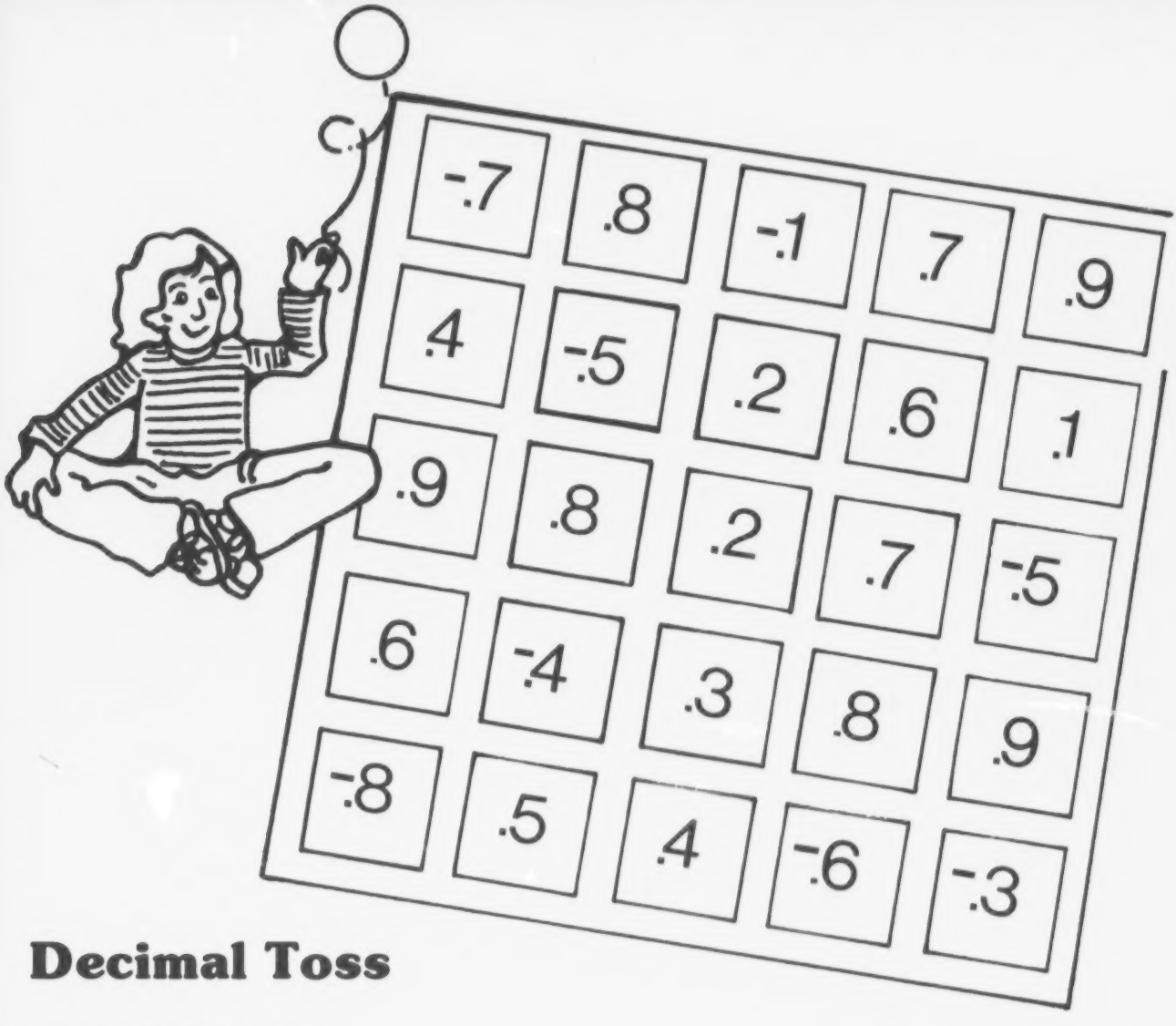
**Directions:**
Four dice are needed to play this activity. The dots on the dice will represent tenths expressed in decimals. Paper and pencils are provided for calculations. In alternating turns, each player chooses to roll one, two, three or four dice. He determines the sum of his throw and writes that numeral in any position on his grid. Play continues until all squares have been filled. Players score the following points if they have managed to position their sums so that their numerals create math facts: 25 points for every subtraction fact and 50 points for every multiplication fact. The numerals may be aligned vertically, horizontally or diagonally.



# The Triples Game




69

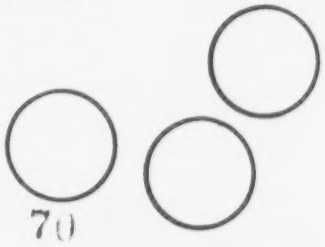



# Decimal Toss

**Skills #4130, #4140**
**Decimals—Addition, Subtraction**

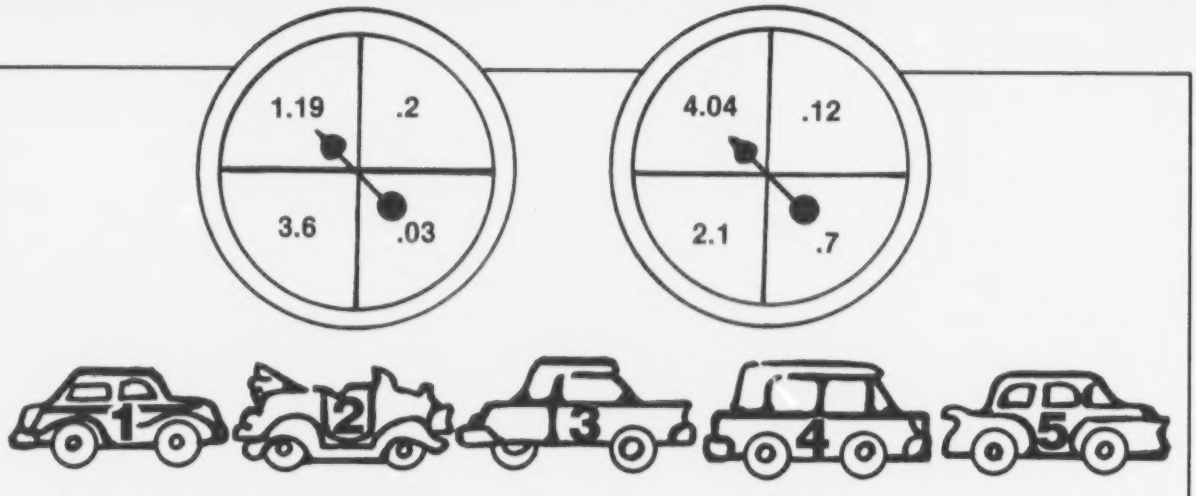
**Objective:**
The student will compute the sum and difference.

**Directions:**
In alternating turns, each player tosses three tokens onto the playing board. He may arrange the three decimal fractions in any order he chooses. Unless depicted by a minus sign, the decimal fractions are added. The object of the game is to reach a score of 20. The first to do so is the winner.





70




| | | | | |
|---|---|---|---|---|
| .024 | 7.56 | .1212 | 14.544 | .14 |
| .14 | .024 | .808 | .063 | .1428 |
| .063 | .1428 | .0036 | .021 | .432 |
| 2.499 | .1212 | .063 | 2.499 | .42 |
| .833 | .021 | 7.56 | 7.56 | .212 |
| 4.8076 | .0036 | 2.52 | 2.52 | .0876 |
| .432 | .42 | .833 | .808 | 2.499 |
| 2.52 | 14.544 | .14 | .024 | .0036 |

# Racy Decimals

**Skill #4150**
**Decimals—Multiplication**

**Objective:**
The student will compute the product.

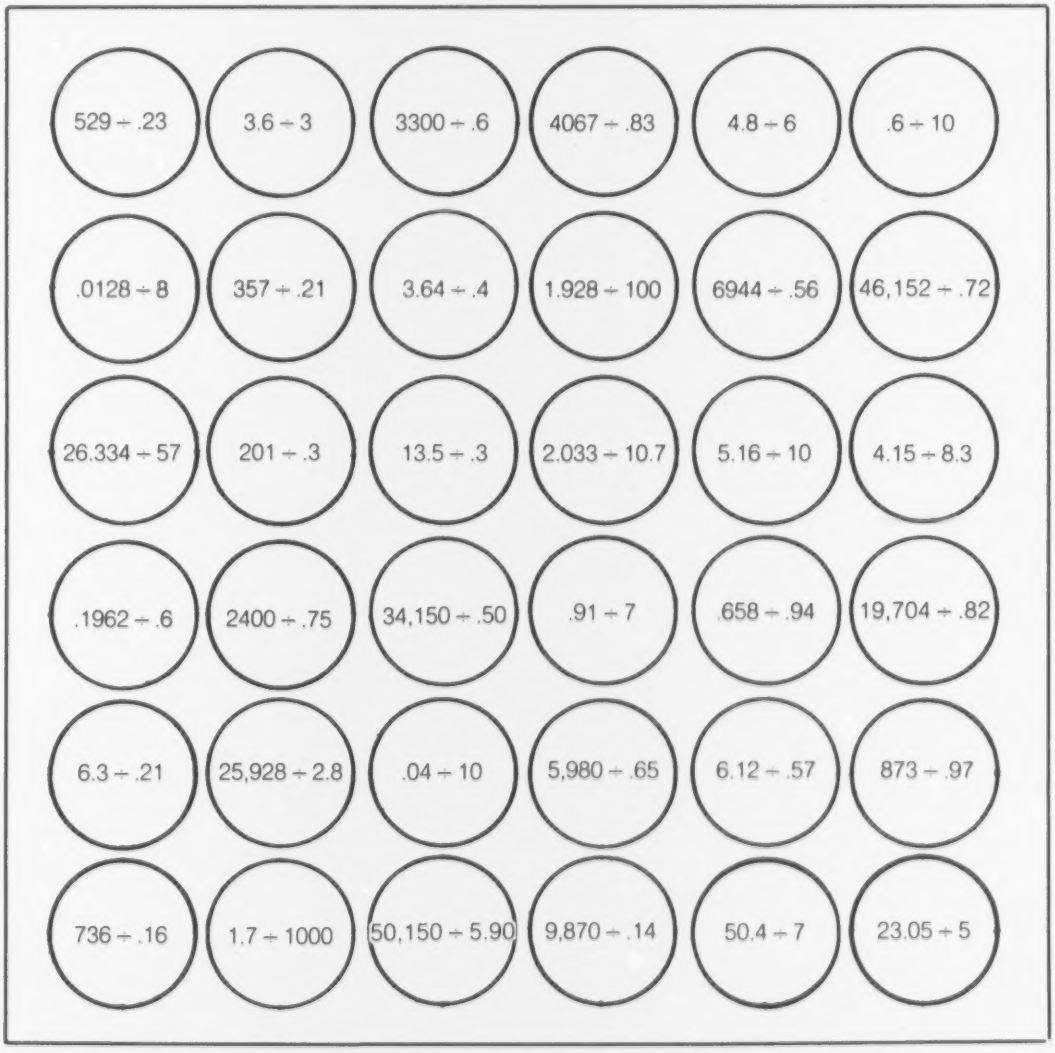
**Directions:**
Two to six students may participate in this activity. Have each student choose a car and its track. In alternating turns, each student spins both disks. Each player multiplies the two numbers and checks the answer if it is on his track. The first player to check all of his numbers wins. Have the students keep a record of the numbers selected on the disks so the winner can verify his answers.

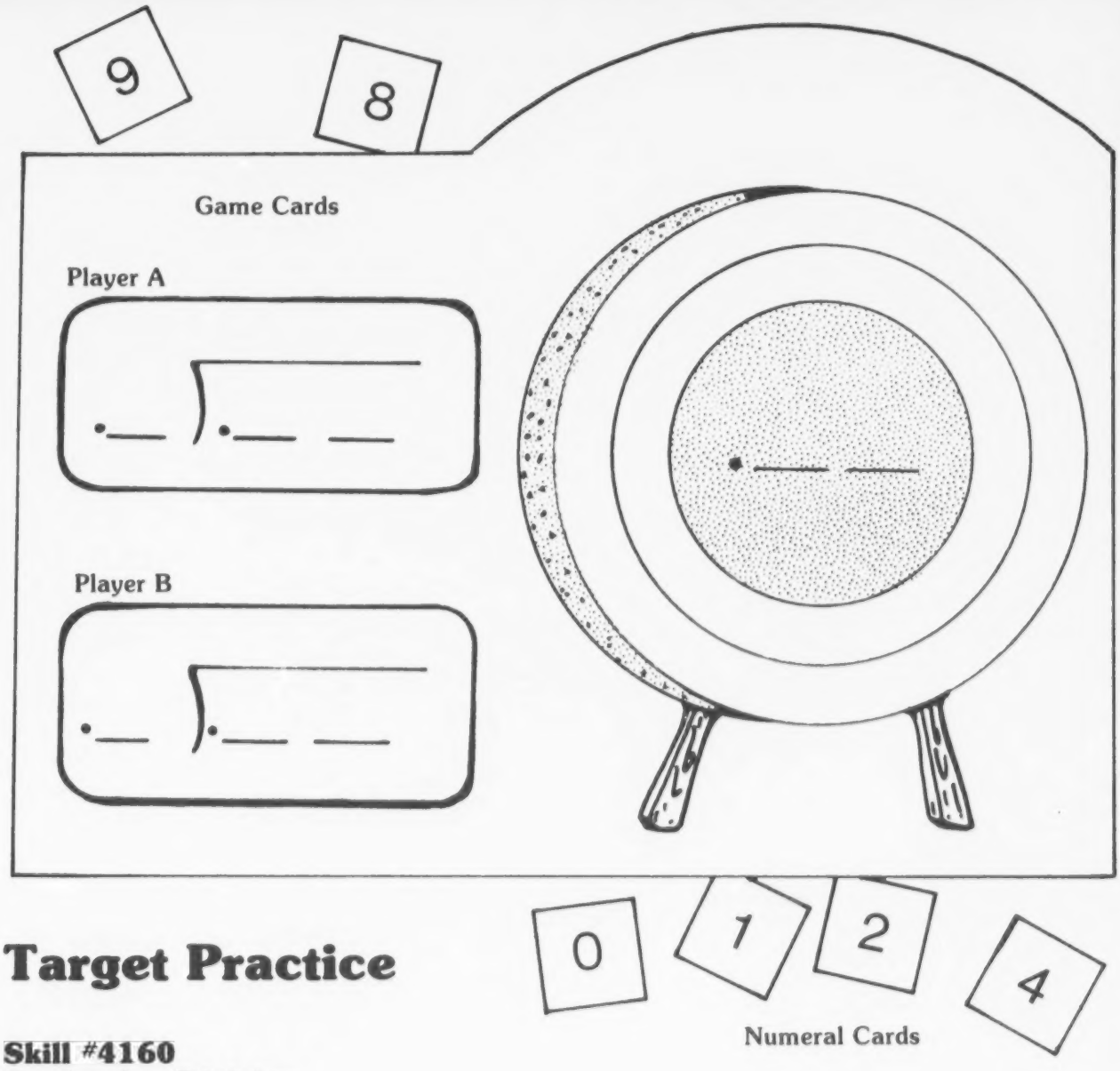
# Divide and Conquer

**Skill #4160**
**Decimals—Division**

**Objective:**
The student will compute the quotient.

**Directions:**
In alternating turns, each player chooses a circle then writes his answer and initials in the circle. The second player may challenge the answer. If the challenger is correct, he crosses out the opponent's initials and puts his own initials in the circle. If the challenger is incorrect, the first player keeps the circle and the challenger loses his next turn. Have the students continue in this way until one player has four circles in a row vertically, horizontally, or diagonally.





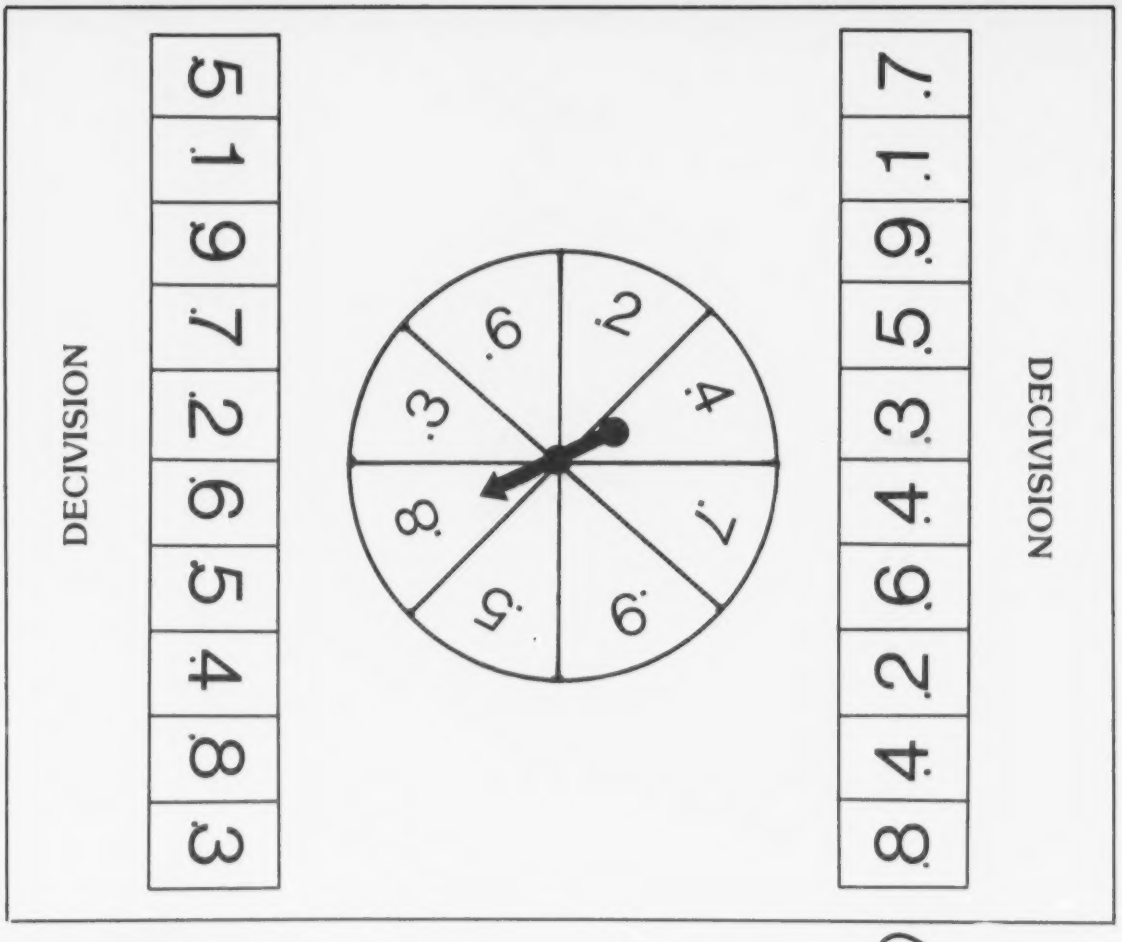

# Target Practice




**Skill #4160**
**Decimals—Division**

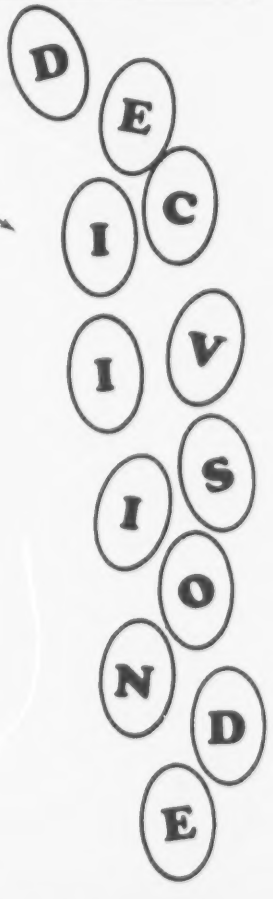
**Objective:**
The student will find the quotient of decimal fractions.

**Directions:**
Write a two-digit decimal fraction in the center of the target. In alternating turns, each player draws three numeral cards one at a time. He must place each numeral card in one of the three positions in the divisor or the dividend of his game card before he draws his next numeral card. Players compare quotients after they have drawn and placed all of their numeral cards. The one who comes closer to the target scores ten points. When all cards have been used, points are tallied to determine the winner.




# Decivision

**Skill #4160**
**Decimals—Division**




**Objective:**
The student will compute the quotient.

**Directions:**
Provide each student with ten counters. The ten counters should spell DECIVISION. Have each student place the counters randomly, face down on the individual decimal strips. In alternating turns, each player lifts one of his counters and spins the arrow to a decimal fraction. In either order, the student must divide the two decimal fractions. A third player, using a calculator, checks the answer. If correct, the player keeps that counter, turning it over to reveal one of the letters needed to spell "Decivision" which stands for division of decimals. If the player does not give the correct answer, the counter is returned, and his opponent may try the problem. The first player to spell "Decivision" with the counters wins the game.

# Go For The Gold

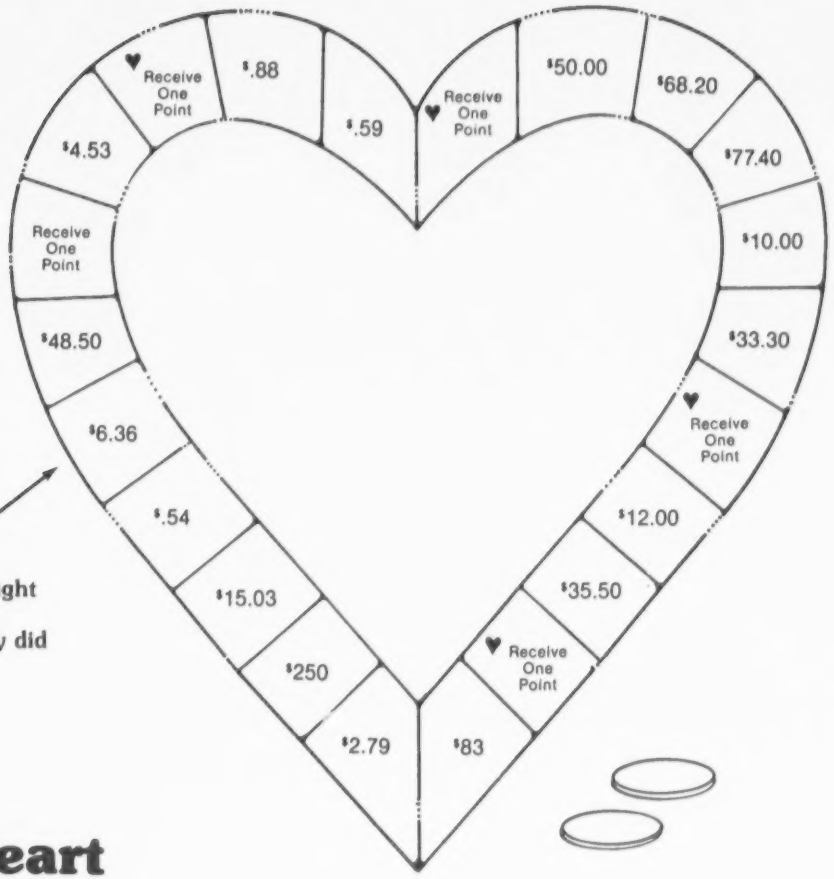
**Skill #4160**
**Decimals—Division**

**Objective:**

The student will compute the quotient of decimal fractions.

**Directions:**

In alternating turns, each player must push a disk from any one of the circles at the bottom of the activity into one of the olympic rings. A disk must land on or inside a ring to count for a turn. The numeral on the ring indicates the number of cards the player may draw. For each division problem he can solve correctly, the player scores the number of points displayed in the lower right corner of the card. The first player to reach 125 points wins the "gold" medal. The second and third players to score 125 points are awarded the "silver" and "bronze" medals respectively.



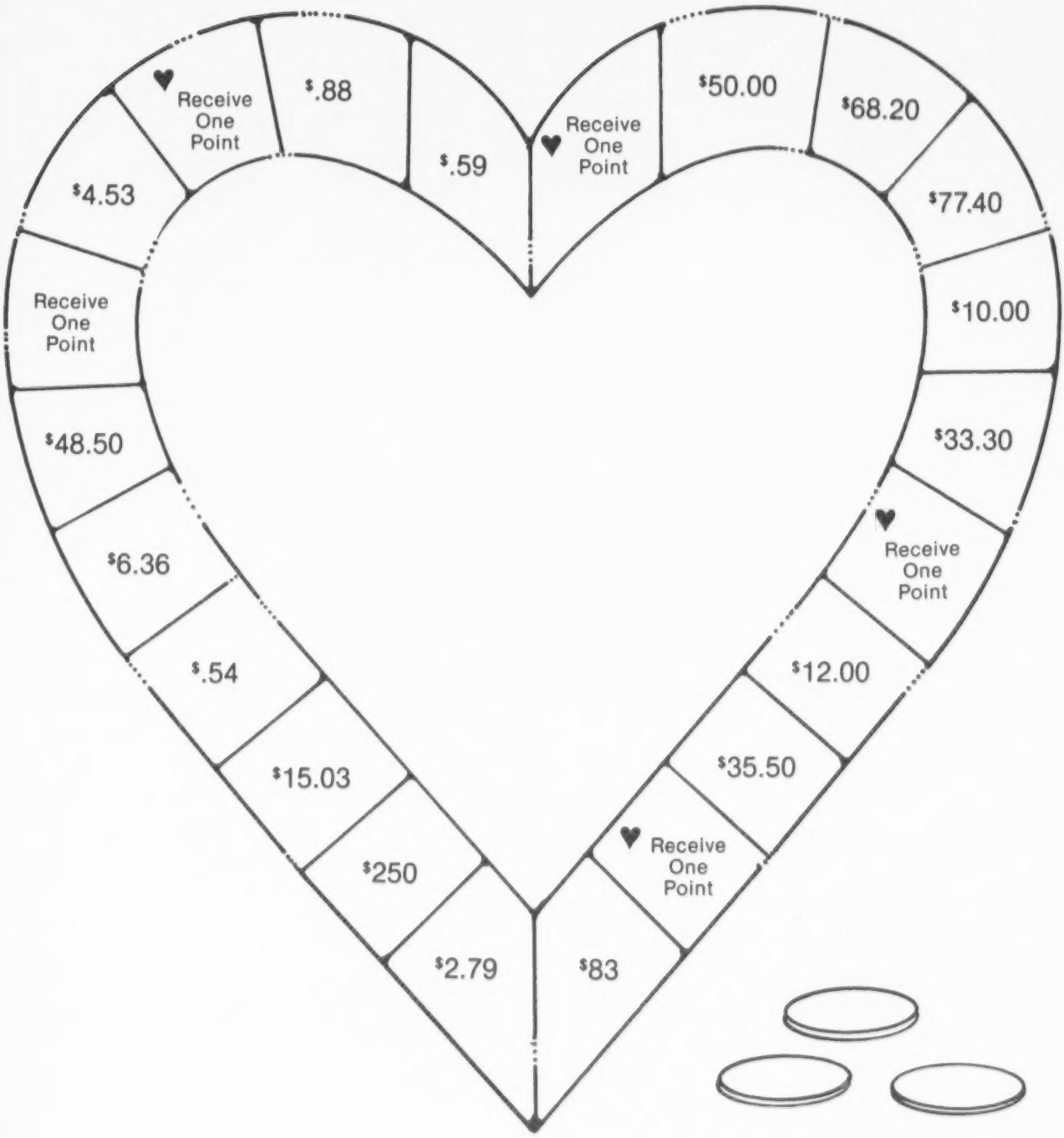

# Put Your Heart Into It!

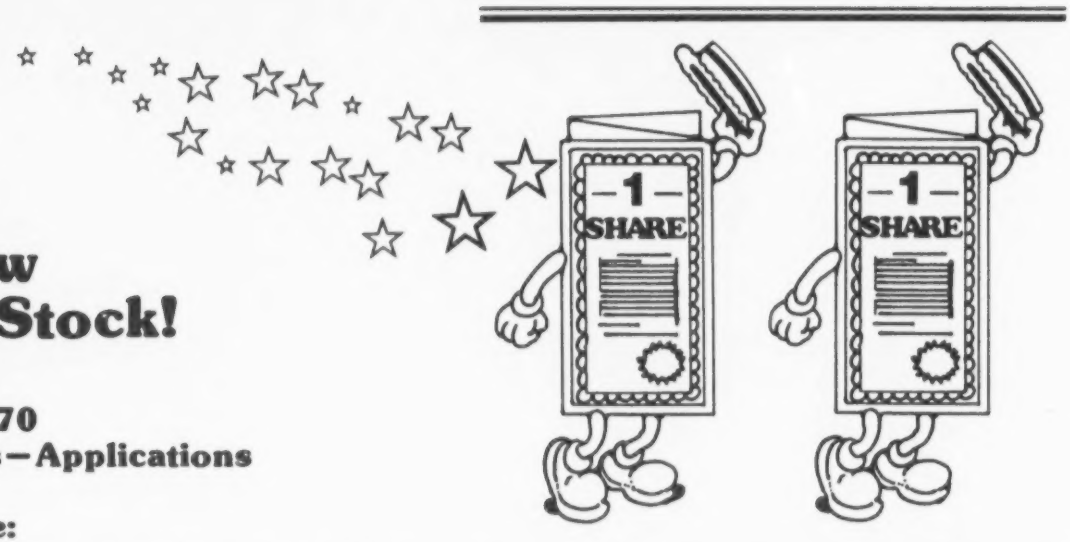
**Skill #4170**
**Decimals—Applications**

**Objective:**
The student will identify a number sentence for solving the problems.

**Directions:**
Have the students "Put Their Hearts Into It" by becoming authors of word problems. To begin the game, each player places his marker on any space on the gameboard on the following page. Then, in alternating turns, each player throws a die and moves the number of spaces indicated. When he lands on a space, he must write a word problem resulting in the answer shown on the space; for example, if a player landed on the space with $.54, he might write the following problem: Joe bought a bat for $6.00 and a ball for $2.95. How much did he spend for taxes if the tax is 6% of the total? Answers may be checked with a calculator. One point is earned for each correct response, and the first player to score eight points is the winner.

# "Put Your Heart Into It" Gameboard






# Follow That Stock!

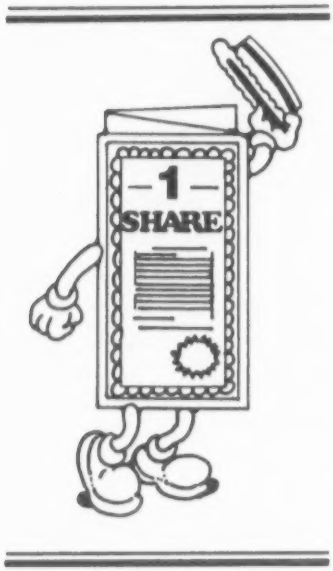
**Skill #4170**
**Decimals—Applications**

**Objective:**

The student will identify an arithmetic procedure for solving a problem.

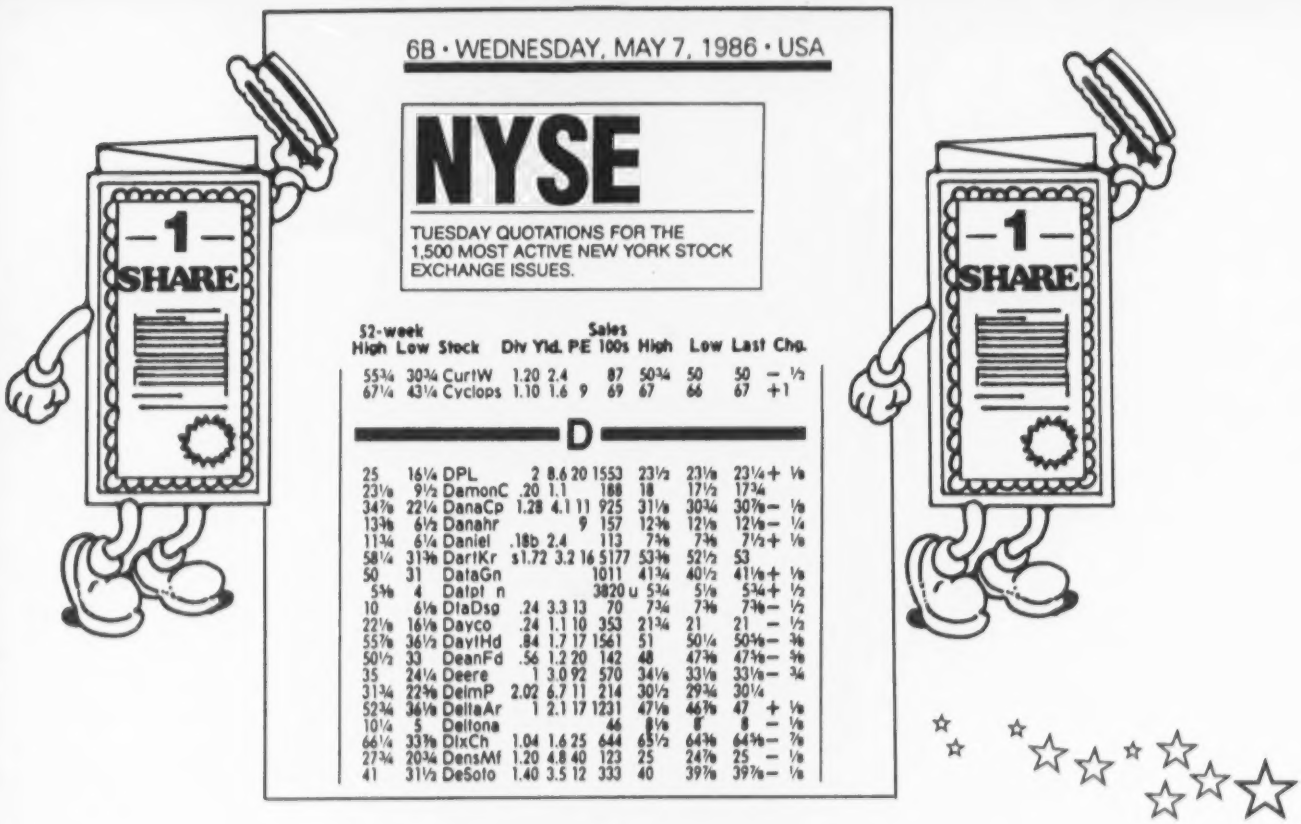
**Directions:**

Allot each student $2,000 to "buy" at least one and not more than three stocks from the American or New York Stock Exchange. Have him follow the market in newspapers for one week to complete the chart on page 73. The Decimal Equivalents chart will help the student calculate the value of a share each day. An example of Delta Airlines stock is given. Page 74 will show the student how to read the stock report from a newspaper.




**Follow-up Activities:**

1. Have the students set up a mock stock-broker's firm and have them make transactions based on current stock market figures.
2. Have each student keep a line graph of his stocks' performance for a week.



6B • WEDNESDAY, MAY 7, 1986 • USA

# NYSE

TUESDAY QUOTATIONS FOR THE 1,500 MOST ACTIVE NEW YORK STOCK EXCHANGE ISSUES.

| 52-week High | Low | Stock | Div | Yld. | PE | Sales 100s | High | Low | Last | Chg. |
|---|---|---|---|---|---|---|---|---|---|---|
| 55¾ | 30¾ | CurtW | 1.20 | 2.4 | | 87 | 50¾ | 50 | 50 | – ½ |
| 67¼ | 43¼ | Cyclops | 1.10 | 1.6 | 9 | 69 | 67 | 66 | 67 | +1 |
| | | | | | | D | | | | |
| 25 | 16¼ | DPL | 2 | 8.6 | 20 | 1553 | 23½ | 23⅛ | 23¼ | + ⅛ |
| 23⅛ | 9½ | DamonC | .20 | 1.1 | | 188 | 18 | 17½ | 17¾ | |
| 34⅞ | 22¼ | DanaCp | 1.28 | 4.1 | 11 | 925 | 31⅛ | 30¾ | 30⅞ | – ⅛ |
| 13⅜ | 6½ | Danahr | | | 9 | 157 | 12⅜ | 12⅛ | 12⅛ | – ¼ |
| 11¾ | 6¼ | Daniel | .18b | 2.4 | | 113 | 7⅜ | 7⅜ | 7½ | + ⅛ |
| 58¼ | 31⅜ | DartKr | s1.72 | 3.2 | 16 | 5177 | 53⅜ | 52½ | 53 | |
| 50 | 31 | DataGn | | | | 1011 | 41¾ | 40½ | 41⅛ | + ⅛ |
| 5⅜ | 4 | Datpt n | | | | 3820 | u 5¾ | 5⅛ | 5¾ | + ½ |
| 10 | 6⅛ | DtaDsg | .24 | 3.3 | 13 | 70 | 7¾ | 7⅜ | 7⅜ | – ½ |
| 22⅛ | 16⅛ | Dayco | .24 | 1.1 | 10 | 353 | 21¾ | 21 | 21 | – ½ |
| 55⅞ | 36½ | DaytHd | .84 | 1.7 | 17 | 1561 | 51 | 50¼ | 50⅛ | – ⅜ |
| 50½ | 33 | DeanFd | .56 | 1.2 | 20 | 142 | 48 | 47⅜ | 47⅜ | – ⅜ |
| 35 | 24¼ | Deere | 1 | 3.0 | 92 | 570 | 34⅛ | 33⅛ | 33⅛ | – ¾ |
| 31¾ | 22⅜ | DeimP | 2.02 | 6.7 | 11 | 214 | 30½ | 29¾ | 30¼ | |
| 52¾ | 36⅛ | DeltaAr | 1 | 2.1 | 17 | 1231 | 47⅛ | 46⅞ | 47 | + ⅛ |
| 10¼ | 5 | Deltona | | | | 46 | 8⅛ | 8 | 8 | – ⅛ |
| 66¼ | 33⅜ | DixCh | 1.04 | 1.6 | 25 | 644 | 65½ | 64⅜ | 64⅜ | – ⅞ |
| 27¾ | 20¾ | DensMf | 1.20 | 4.8 | 40 | 123 | 25 | 24⅞ | 25 | – ⅛ |
| 41 | 31½ | DeSoto | 1.40 | 3.5 | 12 | 333 | 40 | 39⅞ | 39⅞ | – ⅛ |



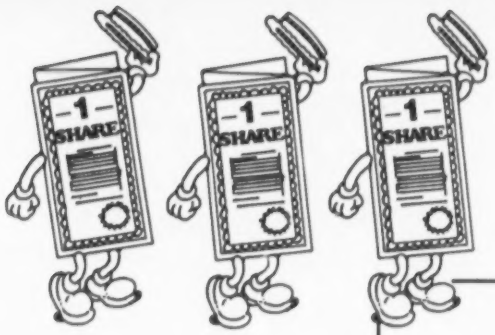
| | |
|---|---|
| Stock Purchased | Delta Airlines |
| Abbreviation | DeltaAr |
| Date Purchased | May 7, 1986 |
| Amount Per Share | $47.00 |
| Total # of Shares Purchased | 42 |
| Total Amount Paid | $1,974.00 |

## Follow That Stock!

| Date | Change | Amount Per Share | Total Shares Owned | Total Value | Gain/Loss |
|---|---|---|---|---|---|
| 5/9 | + ⅛ | 47.125 | 42 | 1979.25 | + 5.25 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

### Decimal Equivalents

⅛ = .125
⅜ = .375
⅝ = .625
⅞ = .875
2/8 = ¼ = .25
4/8 = ½ = .5
6/8 = ¾ = .75




# Follow That Stock!

*continued*

## DAILY STOCK QUOTATIONS

| Year High | Year Low | Stocks | Div. | Day High | Day Low | Close | Net Chg. |
|---|---|---|---|---|---|---|---|
| 25½ | 12⅛ | BalGE | 1.96 | 13⅞ | 13⅝ | 13¾ | ..... |
| 24¾ | 11⅞ | BanCal | 1.34 | 11½ | 11⅜ | 11⅛ | −⅛ |
| 36⅞ | 21½ | Bandag Inc | | 25½ | 25 | 25½ | +¾ |
| 5¾ | 2⅝ | Bangr Punt | | 2¾ | 2½ | 2⅝ | ..... |
| 36½ | 22 | BkofNY | 2.20 | 24½ | 24 | 24½ | +¼ |
| 27¼ | 8¾ | Bk of Va | .88 | 9⅛ | 9 | 9⅛ | +⅛ |
| 57¼ | 29½ | BankTr | 3 | 31 | 30⅝ | 30⅞ | +⅛ |
| 34 | 17¾ | BarbOil | .80e | 19 | 19 | 19 | −¼ |
| 24¼ | 9⅝ | BardCR | .20 | 10 | 9⅝ | 9⅝ | −¼ |
| 22¾ | 2¼ | BarnM | 2.79e | 4½ | 4⅛ | 4½ | +⅜ |
| 10¼ | 6⅜ | BasicInc | .40 | 6½ | 6¼ | 6½ | −⅛ |
| 30 | 24¾ | Basic | pf 2.50 | 24¾ | 24¾ | 24¾ | ..... |
| 15¼ | 10¾ | BatesMf | .20 | 12¼ | 12⅛ | 12⅛ | −¼ |
| 19½ | 14¾ | Bate Mf | pf 1 | 15⅞ | 15¾ | 15¾ | ..... |
| 22¾ | 4⅜ | BathInd | .40 | 6⅜ | 6 | 6¼ | −⅜ |
| 45 | 17¾ | BauschL | .60 | 26¼ | 25¼ | 25⅜ | −⅝ |
| 48⅛ | 24⅛ | BaxtLab | .17 | 26 | 24¾ | 25 | −¾ |
| 6 | 4½ | BaykCig | .32 | 4⅝ | 4½ | 4½ | ..... |
| 28⅞ | 10 | Bearing | .32 | 11⅛ | 11 | 11⅛ | +⅛ |
| 23⅜ | 12¾ | BeatFds | .72 | 12⅞ | 12⅛ | 12⅝ | −¼ |
| 40 | 16 | Beckmn | .50 | 19⅛ | 18 | 18½ | −⅝ |
| 40 | 20⅜ | BectDick | .40 | 21¾ | 21⅛ | 21⅝ | +⅛ |
| 9⅞ | 6⅝ | BeecAir | .60 | 7⅛ | 6¾ | 6¾ | −¼ |
| 21¾ | 16¼ | Beker | .28 | 17⅞ | 17 | 17¾ | +¼ |
| 18½ | 9½ | BelcoP | .77t | 11 | 10¾ | 11 | +⅛ |

The year's high for a share of Bank of Virginia stock was $27¼, or $27.25. The year's low for a share of this stock was $8.75.

What was the day's high for a share of Bank of Virginia? The day's low? At what price was the stock selling when the market closed?

The day's net change (the difference between yesterday's closing price and today's closing price) was +⅜. That means that the price of each share of stock gained, or went up, ⅜ of a dollar, or 37½¢. Notice that some stocks had a negative net change. That means the price of the stock lost, or went down, that day.

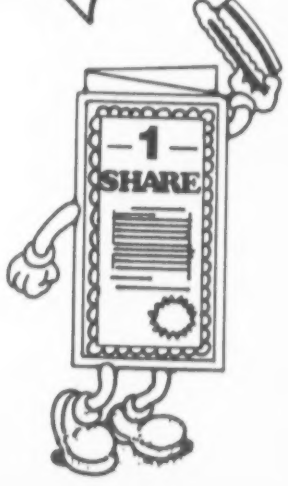
Select eight stocks that are listed on the New York Stock Exchange. Pretend that you own 100 shares of each of the eight stocks. For one week, compute the total dollar net change of your 800 shares.

*Example.*

Bausch and Lomb, Inc. lost ⅝ of a dollar, or 62½¢ a share. So, if you owned 100 shares of Bausch and Lomb, you would have a loss of $62.50 for that day.

***Explanation taken from Riley and Ruker's Heath Mathematics.***

***This page will explain how to follow stock in a newspaper.***



| | | | |
|---|---|---|---|
| root beer | $.20 | $.30 | $.35 |
| orange | .20 | .30 | .35 |
| grape | .20 | .30 | .35 |
| cola | .20 | .30 | .35 |

| | |
|---|---|
| french fries | $.40 large |
| french fries | .30 small |
| apple flipover | .25 |

| | |
|---|---|
| hamburger | $.30 |
| cheeseburger | .35 |
| fish sandwich | .45 |
| giant burger | .65 |

| | |
|---|---|
| Mr. Freeze | $.55 |
| malt | .45 |

# Decimal Diner

**Decimal Diner**

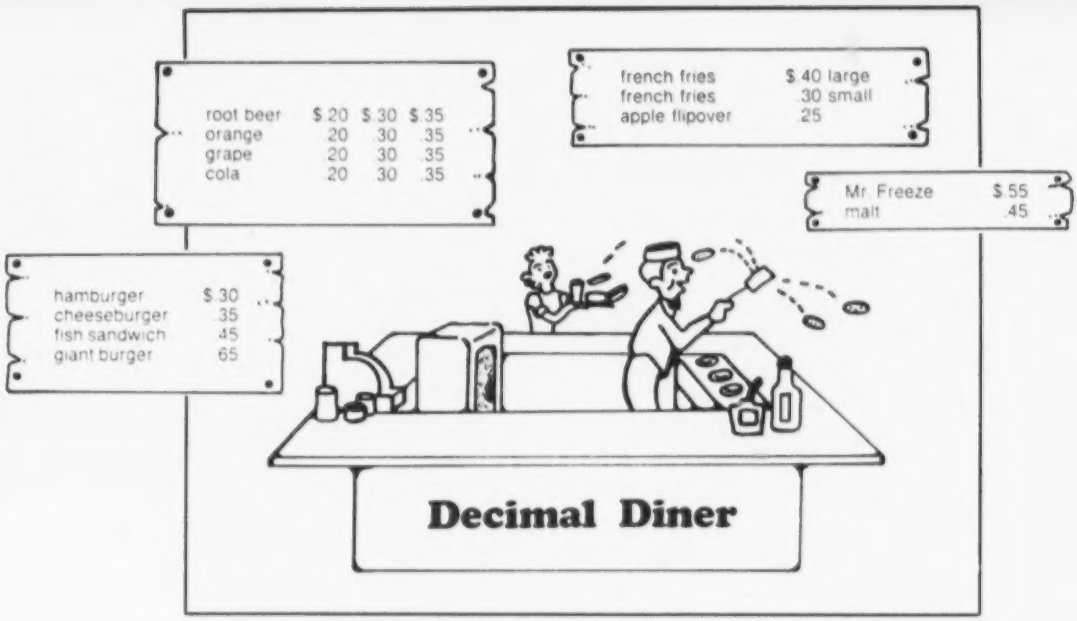
**Skill #4170**
**Decimals—Applications**

**Objective:**
The student will identify an arithmetic procedure for solving the problem.

**Directions:**
Have the student read each math problem, write a procedure for solving it and solve it using the prices given above.

You have been sent to buy dinner for your family. They ordered 3 hamburgers, 3 cheeseburgers, 2 giant burgers, 2 large orders of french fries and 4 small colas. How much is your bill?

After earning $5.00 for cutting grass you are hungry and thirsty. You want to spend ¼ of your earnings at Decimal Diner. What could you buy?




It's your birthday! Your mother has given you $4.40 so that you and three friends can have lunch at the Decimal Diner. You must select the same food for each person. Study the menu carefully!

*Menu*

Your eyes are bigger than your wallet. You have ordered 3 giant burgers, 1 malt, 1 apple flipover and 1 large order of french fries. When you get ready to pay, you find you have $2.51. How much more money do you need?

As president of your class, you must buy refreshments for your class party. Thirty students are in your class. Each one will order 1 hamburger, 1 large order of fries and a medium cola. How much will the class treasurer give you to pay the bill?

*Menu*

Your baseball team is in first place. Your coach gives you $17.25 and tells you to buy all 15 teammates the same treat. What will you buy for each player? Spend the entire $17.25.

| | | | | | |
|---|---|---|---|---|---|
| area | width | diameter | product | remainder | sum |
| circle | measure | addend | radius | length | numerator |
| quotient | divide | perimeter | percent | metric | multiply |
| average | fraction | denominator | polygon | triangle | angle |
| parallel | graph | degree | | | |

sum
parralel
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perimeter
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percent
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fraction
angle
diametor
divid
qotient
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graph
polygon
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width
measure
sum

# Spelling Percent

**Skill #5120**
**Percent—Conversions**

**Objective:**

The student will identify a fraction and then convert it to a percent.

**Directions:**

In a recent spelling game, these students were given math words to spell. Have the student write as a fraction the number of words spelled correctly by each student and then convert it to a percent, for example, 9 out of 12 = $\frac{9}{12}$ = 75%.

**Follow-up Activities:**

1. Have the student determine the average number of words spelled correctly. Have him give the answer in percent.
2. Have the students construct a graph showing the percentage of correct responses for each student.

percent
triangel
degre
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circle
grapf
remander
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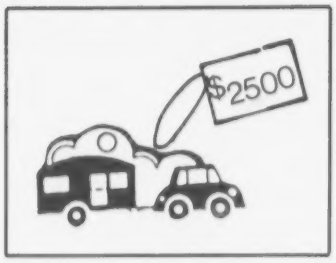
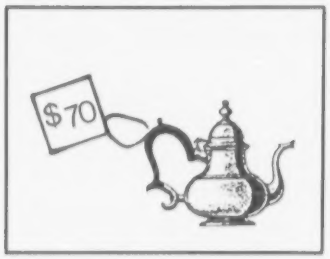
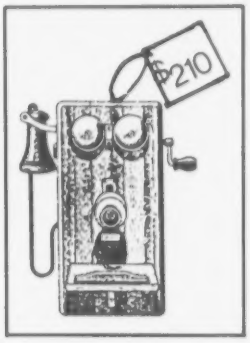
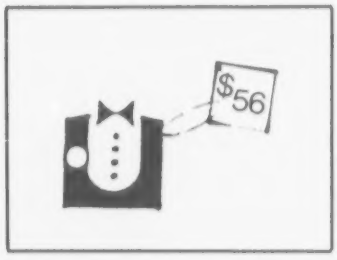
avrage

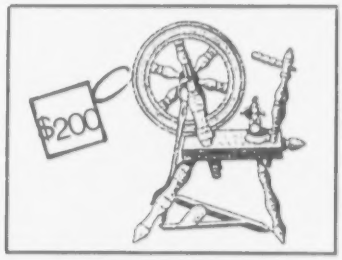


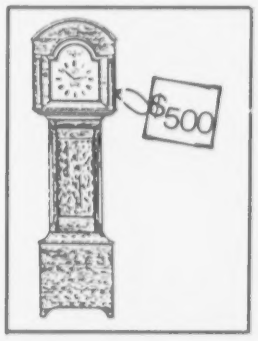




**Playing Cards**



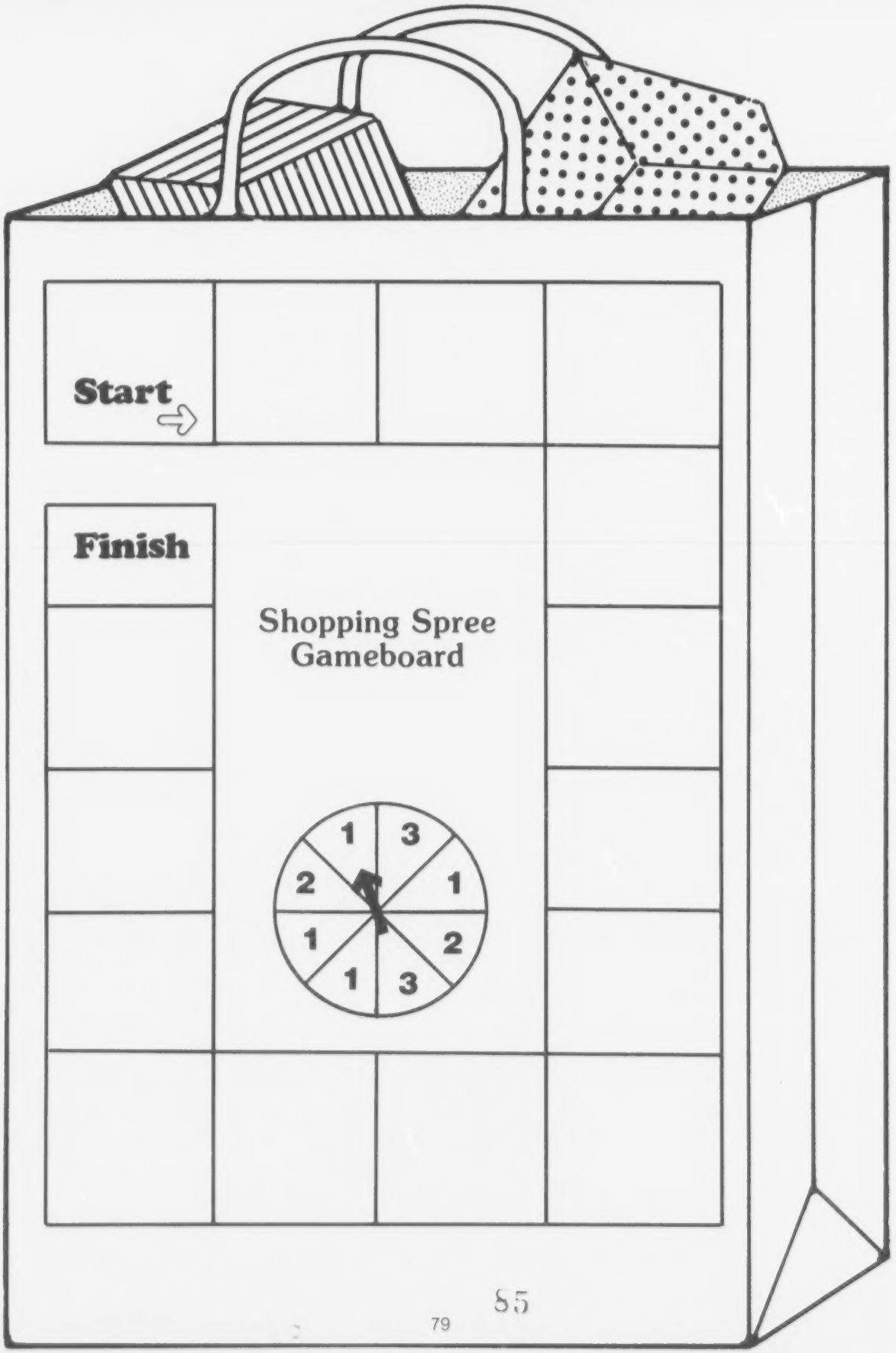




# Shopping Spree

**Skill #5130**
**Percent—Calculations**

**Objective:**
The student will find percent.

**Directions:**
Place cards on the gameboard. In alternating turns, each player spins the arrow to determine the number of spaces he may move and draws a card from the stack. He must figure a 5% sales tax on the item shown on his card and give the total cost of the item. If he is incorrect, the card is placed on the bottom of the stack. Answers may be checked with a calculator by a neutral person. When the first person reaches "finish," points are tallied to determine the winner. Each player receives five points for each card he holds, and ten points are awarded to the player who reaches "finish" first.


Start
Finish
Shopping Spree
Gameboard
1
3
2
1
1
2
1
3

# Knight Rider

**Skill #5130**
**Percent—Calculations**

**Objective:**
This activity will provide practice for the student in word problems involving percent.

**Directions:**
Have the student select a favorite one-hour television program to view without interruption. Have him carefully record the exact time and length of each commercial break. After the program is over, have him determine what percentage of the hour was spent for commercial breaks.

**Follow-up Activities:**
1. Using the same percentage of commercial time based on a twelve-hour viewing day, have the student determine how much time would be spent in commercials in one day, one week and one year.
2. Have the student pick a 3-hour period during prime TV time and determine what percentage of that time is used for advertising. Have him compare it to non-prime time advertising.

**A FACT:**
Most newspapers have 40% news and 60% advertising to break even.

# *"All The News That's Fit To Print"

**Skill #5130**
**Percent—Calculations**

1. What percent of the whole newspaper is advertising?
2. What percent of the whole paper is sports news?
3. What percent of the whole paper is society news?

**Objective:**

This activity will provide practice for the student in word problems involving percent.

**Directions:**

Provide students with newspapers and magazines. Have the students figure how many columns wide a specific page is and how long and wide the columns are. Next have him choose a section that has both advertising and news. Have him determine what percent of that section is advertising and what percent news.

**Follow-up Activities:**

1. Provide students with magazines. Have them determine what percent of each magazine is given to advertising.
2. Have the student compare the percentages of advertising in newspapers, magazines and television and determine which is greatest. (For the television figures, he may use the information from the "Knight Rider" activity.)

**Slogan from New York Times.*

**Some examples to be placed on playing cards.**

Your grandmother gave you $100 for Christmas. You kept $25 and deposited the rest in your savings account. What is your balance?

Doing yard work in the neighborhood enabled you to deposit $52.50 this month. What is your balance?

The interest rate fell to 4¾% this month. How much interest did you earn? What is your balance now?

You won $15 in a poster contest and deposited it before interest was figured at 6%. What was your balance before and after interest was figured?

Due to the economy, the interest rate was 5¼% this quarter. How much interest did you earn?

This month you withdrew $75 for your camp payment before your interest was figured at 5%. What is your balance now?

You had to withdraw $17.25 for bicycle repairs. What is your balance now?

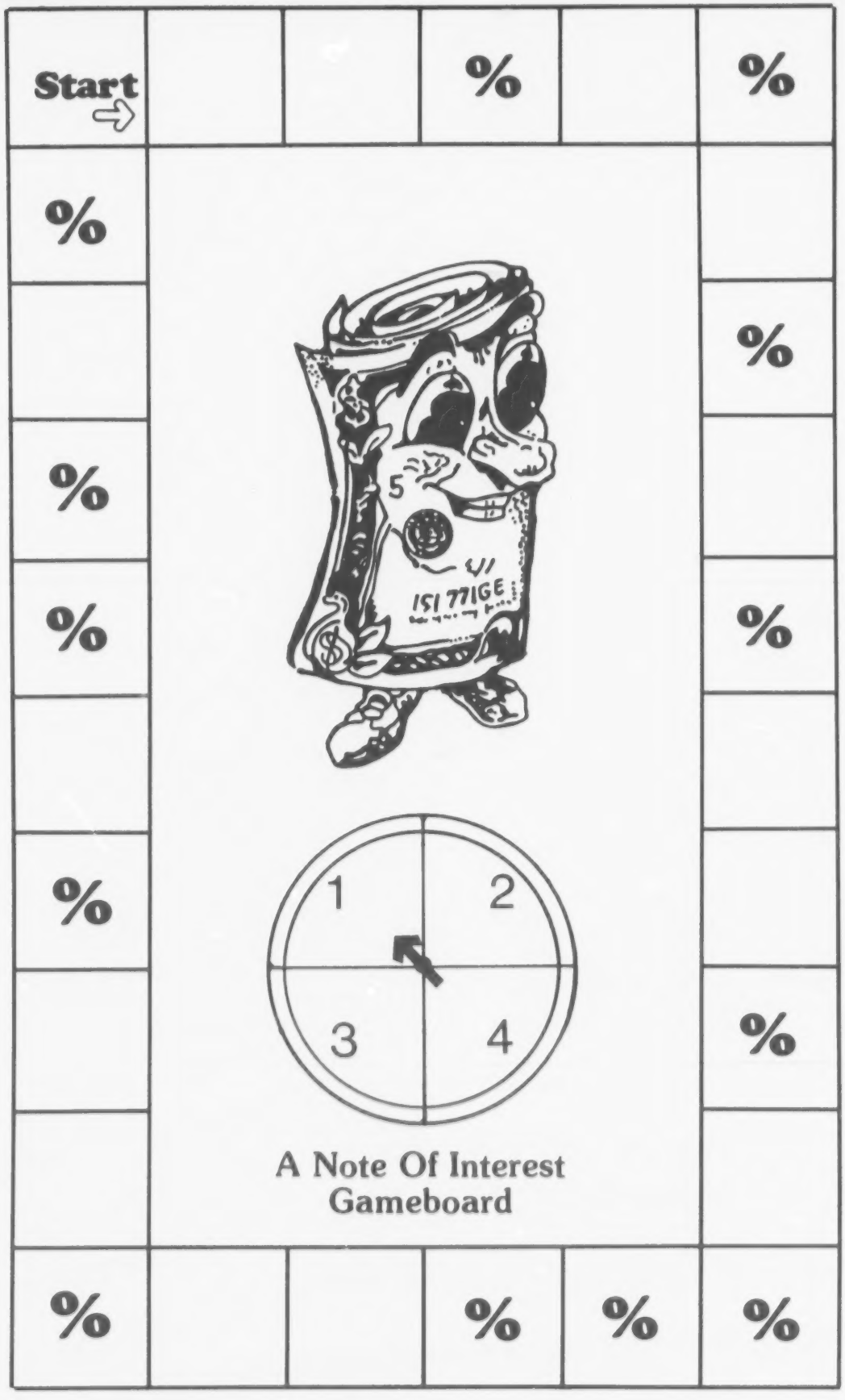
The neighbors gave you $20 for taking care of their dog, and you spent $8 for a record. You deposited the rest and earned 5½% interest for the month. What is your balance?

# A Note Of Interest

**Skill #5130**
**Percent—Calculations**

**Objective:**
The student will determine the solution to a word problem involving percentages.

**Directions:**
To begin, each student is given $500 to open a savings account at a local bank. In alternating turns, players will spin the arrow to move around the game board. Any time the student lands on a % sign, he may draw a playing card. He must solve the problem and add or subtract the amount to determine his new savings balance. The player with the largest amount in savings after all the cards are drawn is the winner.




**A Note Of Interest**
**Gameboard**

A funny, fat clown named Rose
Balanced seventy-five balls on her nose.
In an act, fifteen fell when she
tripped on her toes.
What percent are now left on her nose? _____

# Nosy Rosy

**Skill #5140**
**Percent—Applications**

**Objective:**

The student will identify the arithmetic procedure for solving the problem and will solve it.

**Directions:**

Have the student read the poems and find the percentages.

One hundred sick ants on Flu Hill
Had the doctor send each one a pill.
Only ten survived but remained very ill.
What percent never saw the huge bill? _____

Five dogs from the small town of Gate
Each gave birth to a litter of eight.
Ten puppies were sold at a very high rate.
What percent were left there to wait? _____

A basketball team called the "Poors"
Won nine games but played fifty-four.
The coach was so mad, he really was sore.
"You've won _____ percent and no more!"

# Nosy Rosy
*continued*

Sixty young men from Din Witty,
Went to get rich in the city.
Forty returned quite poor. What a pity!
What percent got rich in the city? _____

A quick hen from the town of DeMun
Lays her eggs at noon by the ton.
While the others lay nine, she sports twenty-one
What percent of all 30 has she done? _____

Three soldiers, while they were marching,
Discovered an enormous fortune;
Between them they split it,
With excitement they did it,
What percent did each get of the fortune? _____

A teacher by the name of Miss Rool,
Taught thirty at Mount Pleasant School.
Her face turned quite white,
When twenty started a fight.
What percent would stay after school? _____

A super young player named James,
Played in fifty-five ice hockey games.
Of the eighty goals scored,
He made twenty-four.
What percent of the goals gave James fame? _____

Fifteen young maidens from Tarry
Wanted so much to marry.
Three of them wed Tom, Dick and Harry.
What percent of them now are not merry? _____

***Funny poems taken from***
***Rabenau and Williams Milliken Math Activities.***

# Nosy Rosy

*continued*

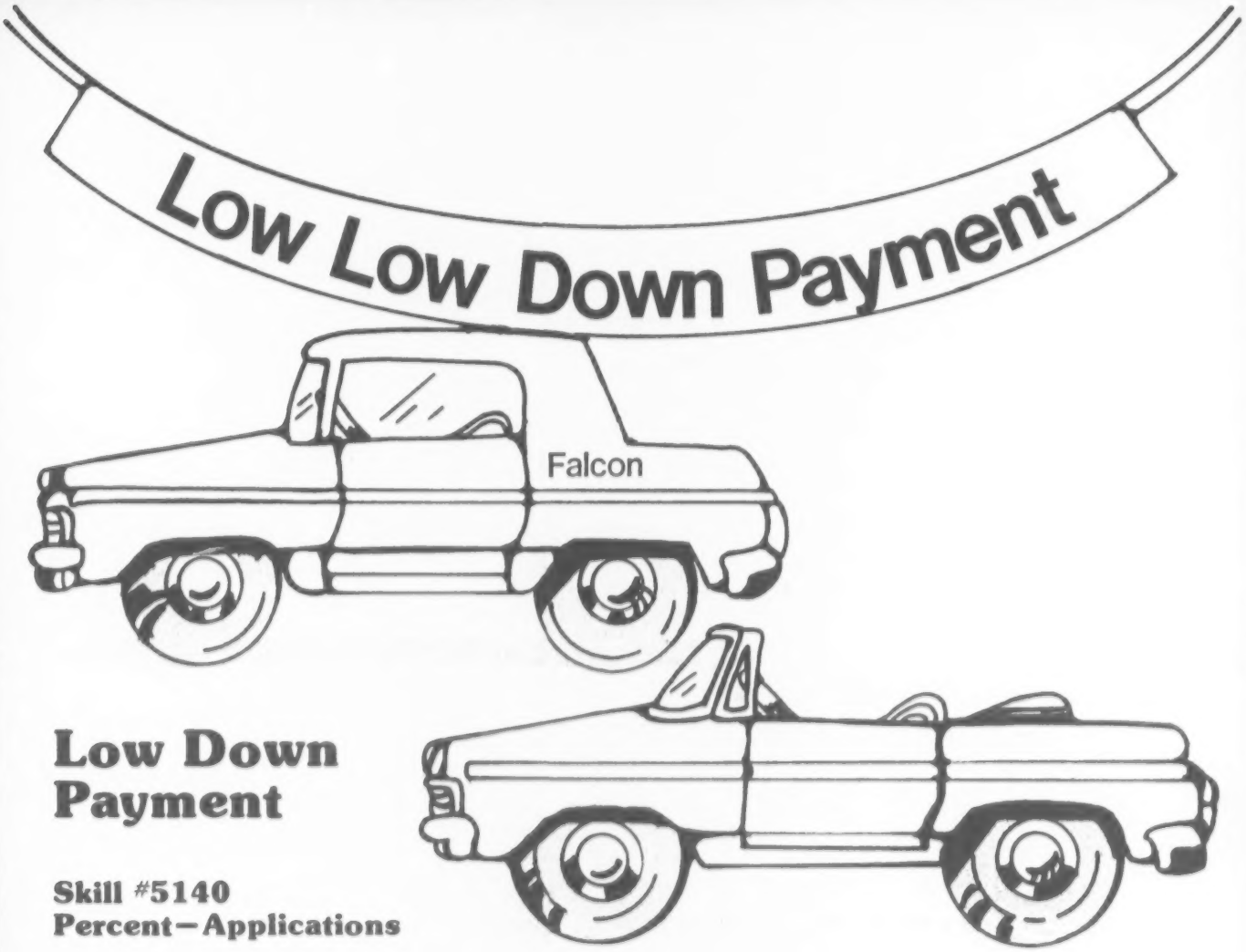
A greedy young boy from McGandy,
Got into a bag of some candy.
Twenty pieces were in it,
He ate five in a minute.
What percent was left of the candy? _____

A busy young farmer named Pete,
Sowed ¾ of his farm with some wheat.
A crop of sugar he planned,
For the rest of the land.
What percent of his farm would be sweet? _____

An ugly old Queen from Paris,
Insisted that she was the fairest.
One hundred maidens were seen,
Ten were banned by the Queen.
What percent of the beauties left Paris? _____

There once was a driver named Gus,
Who had fifty warm boys on his bus.
As he drove over a creek,
Thirty dove in with a shriek.
What percent of boys stayed on the bus? _____

There was a snake charmer named Znu,
Who was feeling extremely blue.
Thirty snakes he had once,
Six had been missing for months.
What percent of the snakes made Znu blue? _____




# Low Down Payment

**Skill #5140**
**Percent—Applications**

**Objective:**

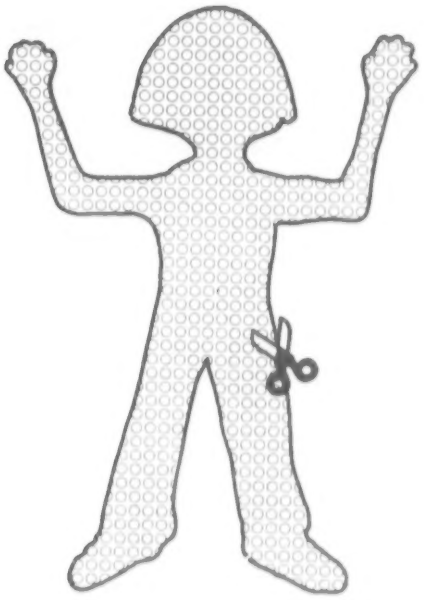
The student will identify the answer to the problem.

**Directions:**

Have each student choose a new car and a used car he would like to buy. He may go by car lots or look in the classified ads to find the automobiles of his choice. Have him call or visit several dealers to find out how the items can be purchased on the installment plan and how much interest he would be paying. Have the student compute the cost of buying on the installment plan and compare it to the cost of paying cash.

**Follow-up Activities:**

1. Have the student visit a bank and a savings and loan to find out the interest rates on borrowing money for a car. Have him determine if he would save money by borrowing from a bank or from a savings and loan company.
2. Have the student find out the different interest rates given at banks and savings and loan companies on money in savings accounts. Have him compute how much he would earn in interest if he deposited as much as he borrowed.



# Body Metrics

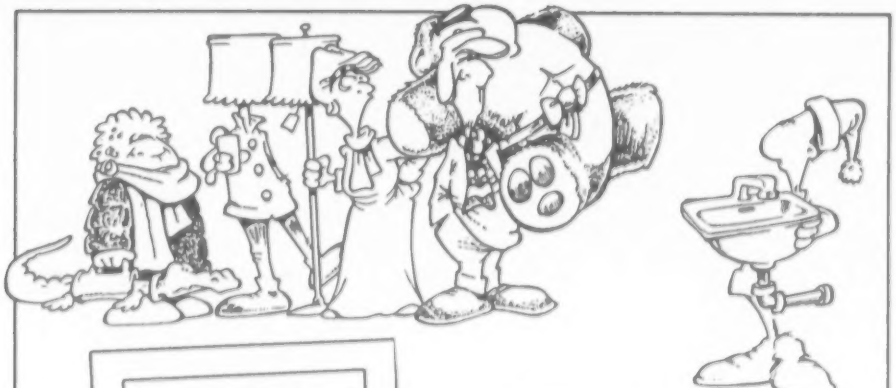
**Skill #6110**
**Measurement—Linear**

**Objective:**
The student will measure using the metric system.

**Directions:**
Have the student use a tape measure or ruler to find the measurements in centimeters of the silhouette shown above. Find the following: the width of the head, the length of the leg, the length of the foot, the width of the arm. Then have the students trace around each other's silhouettes on brown paper. Ask the students the following questions: whose silhouette is tallest, whose is shortest? Have them measure to be sure.

**Follow-up Activities:**

1. Have the silhouettes of several people available for a contest. Each student must estimate the dimensions of the silhouettes. Have them check by measuring. The one who comes closest to the actual measurements is declared Mr. or Ms. Metric.
2. Have each student prepare a personal measuring guide by determining his hand span and then measuring objects in the room by recording how many "hands" tall, wide or long an object is.



| LIST A | |
|---|---|
| Eraser | in |
| Chalk | mm |
| Pencil | cm |
| Paper Clip | in |
| Jar | cm |

| LIST B | |
|---|---|
| Notebook | in |
| Crayon | cm |
| Box | in |
| Pen | cm |
| Tack | mm |

# Scavenger Hunt

**Skill #6110**
**Measurement—Linear**

**Objective:**
The student will identify the lengths of objects using specified units of measurement.

**Directions:**
Each student (or team) receives a list of items to find. After collecting them, the students must record each item's length according to the designated unit of measure. The first student to complete his "hunt" wins the game.

**Follow-up Activities:**
1. Give each student a specific measurement and have him locate items with the corresponding length.
2. Promote a discussion of everyday expressions which incorporate measurements. Some examples are: "An *ounce* of prevention is worth a *pound* of cure." "Give them an *inch* and they'll take a *mile*." Have the students list new expressions using metric terms.

# Long-Legged Luke

**Skill #6110**
**Measurement—Linear**

**Objective:**

The student will measure with a ruler and express length to the nearest centimeter.

**Directions:**

Have the students guess the answers to the following questions:

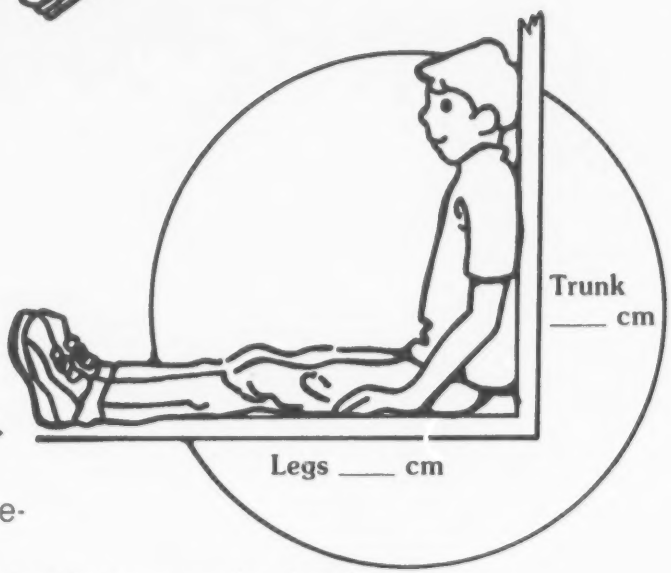
1. Do you think your legs are long, short, or average compared to your height?
2. Do you think taller people are more leggy (long-legged) than shorter ones?
3. Which do you think are more long-legged, boys or girls?

After students have guessed the answers to the questions, have them measure their legs using the directions on the following page.

**Follow-up Activities:**

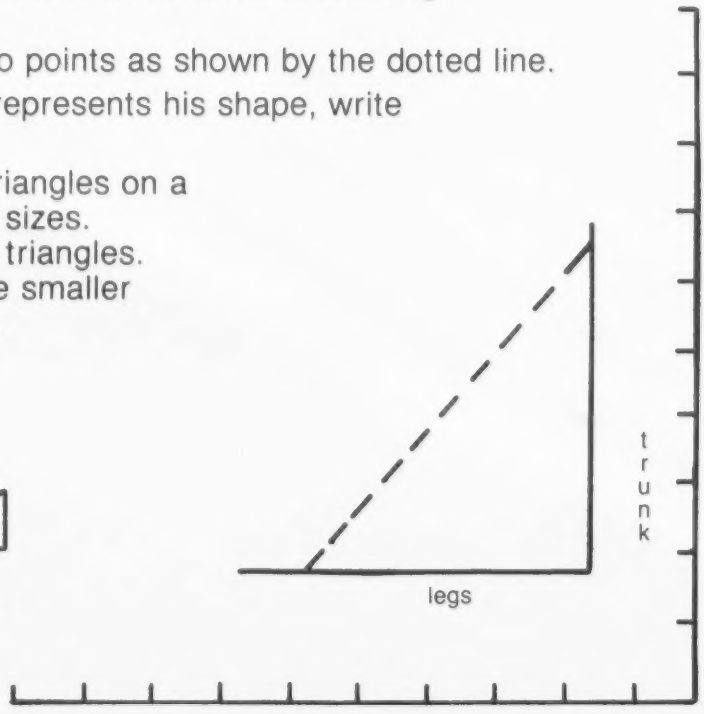
1. Have the students measure the angles of their triangles with protractors. This will give them practice in using protractors after they have done their measurements.
2. Have the students make a graph showing how many students are represented by each triangle shape.
3. Have the student mark the measurements on a scale drawing like the one shown below.

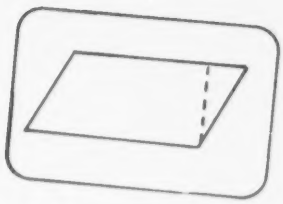
## Long-Legged Luke

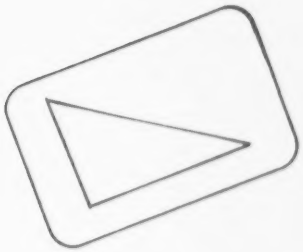


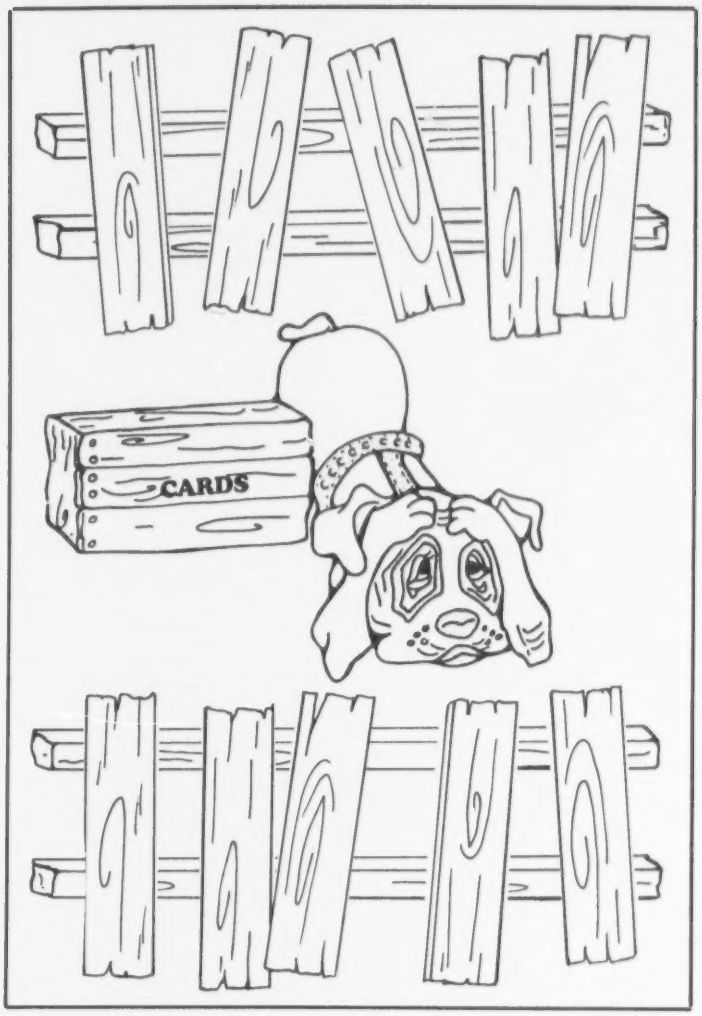

**Directions for measuring:**

1. Have the student sit against the wall.
2. Have a friend make the two measurements shown.
3. Have the student mark the measurements on a scale drawing like the one shown below.
4. Have the student connect the two points as shown by the dotted line.
5. Have him draw the triangle that represents his shape, write his name on it, and cut it out.
6. Have the students display their triangles on a bulletin board and compare their sizes. The taller people will have larger triangles. The more leggy the student is the smaller the slope the "leg" angle will be.









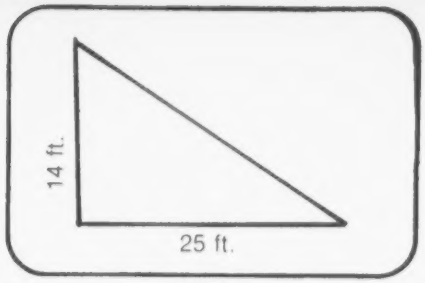

# Don't Fence Me In

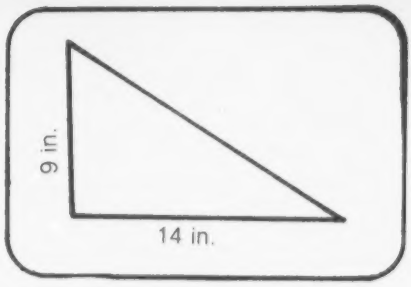
**Skill #6120**
**Measurement—Area**

**Objective:**
The student will find the area.

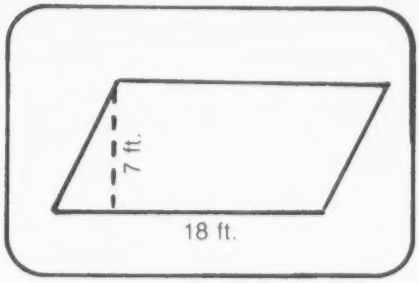
**Directions:**
Divide ten fence boards between two players. In alternating turns, each player must draw a card and find the area of the figure shown. His opponent may check the answer with a calculator. If he is correct, the player may put up a board on his opponent's fence line. If he is found in error, the opponent may put up a board on the first player's fence line. The first one to complete his opponent's fence is the winner.

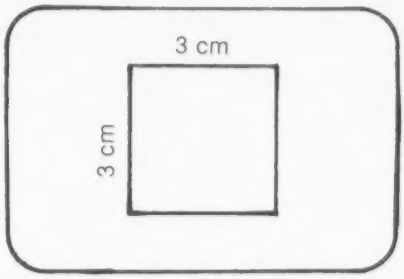
**Follow-up Activities:**
1. Have the student find the area of a small piece of land such as his school yard or the lot his home is on.
2. Provide popsicle sticks for the student to lay out a house plan. Have him use a scale of measurement to compute the area of each room.

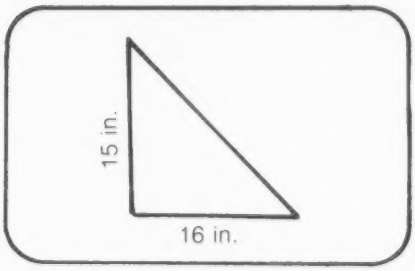


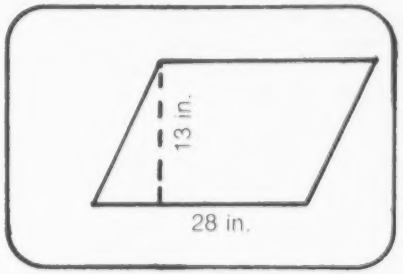




Playing Cards

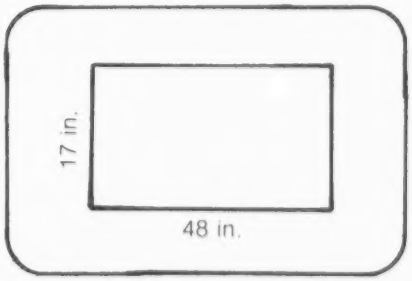


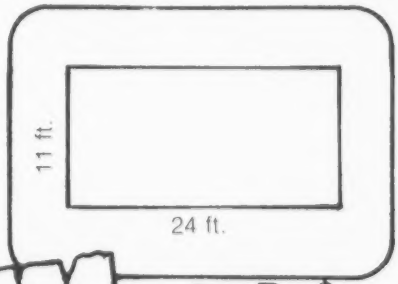



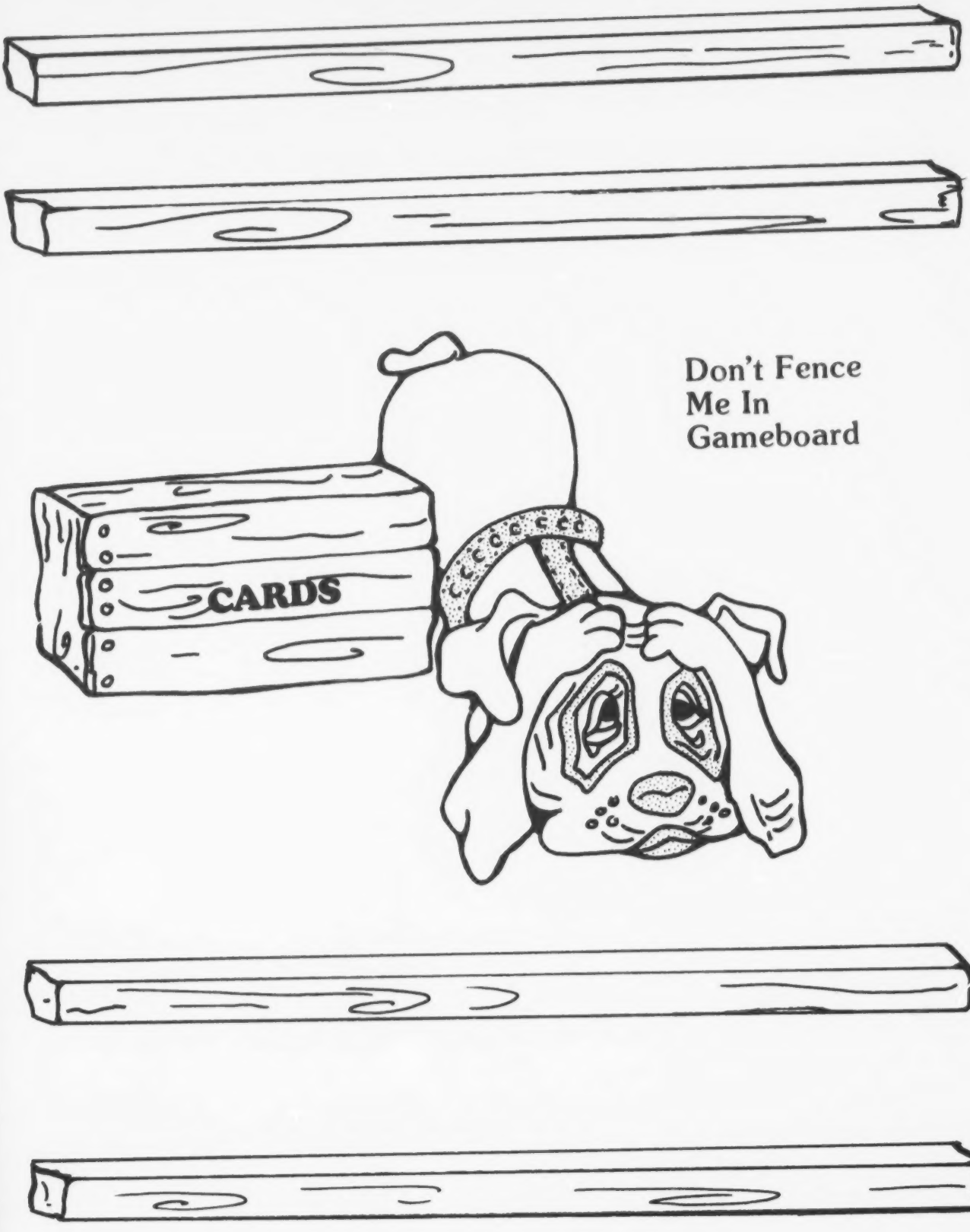




## Don't Fence Me In



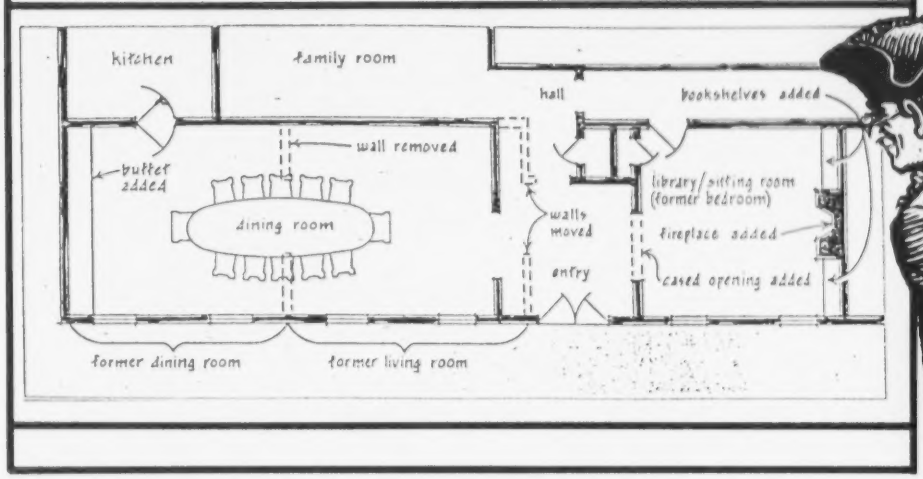



Fence Boards
Make
10 of
these.




**Don't Fence Me In Gameboard**

# YE OLDE INN




Scale: ½ inch = 10 feet

1. The length of the kitchen
2. The dimensions (length and width) of the new dining room
3. The length of the buffet
4. The dimensions of the library/sitting room
5. The dimensions of the former dining room
6. The length of the family room
7. The dimensions of the former living room
8. The length of the hall

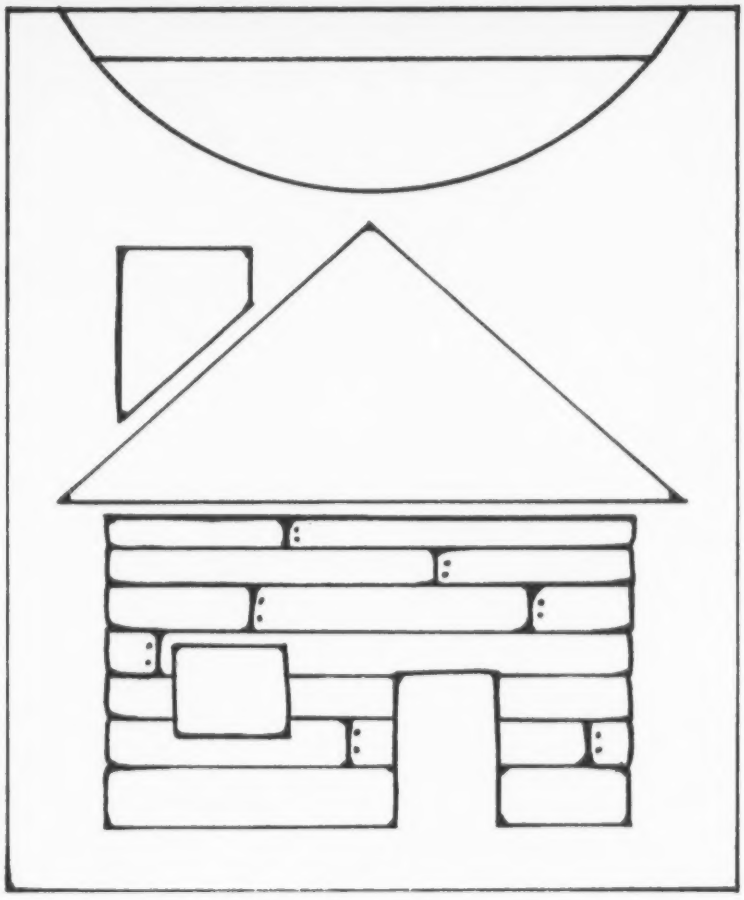
# Ye Olde Inn

**Skill #6120**
**Measurement—Area**

**Objective:**
The student will measure lengths on the scaled drawing and convert them to actual lengths.

**Directions:**
The bottom floor of Ye Olde Inn has been renovated to accommodate more guests. Answer the questions given above by using the scale, ½ inch = 10 feet.

**A Follow-up Activity:**
Have the student measure an actual tennis or basketball court, and then have him make a scale of it.

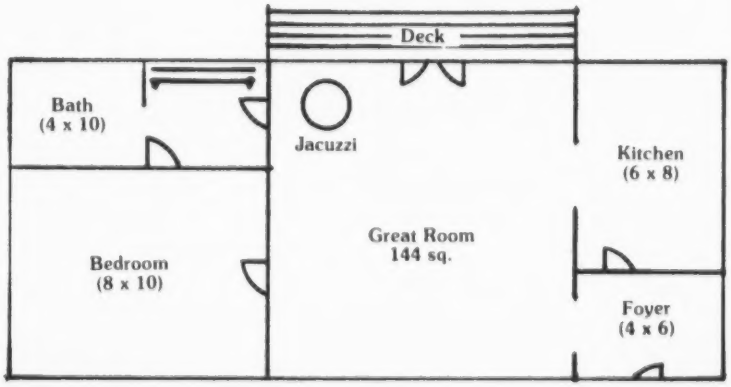


# An Architect's Dream

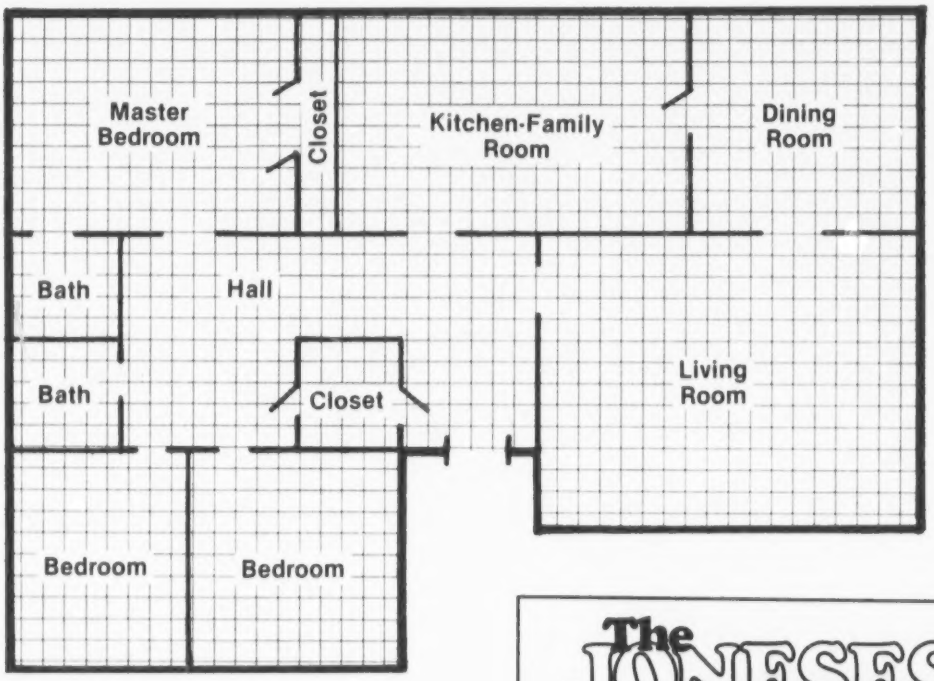
**Skill #6120**
**Measurement—Area**

**Objective:**
The student will compute the area of a house.

**Directions:**
Tell the student to pretend he is the recipient of a free vacation home. The only stipulation is that he must design the floor plan. His vacation home must include a living room or great room, a bedroom, a bath with a closet, a kitchen and a foyer or porch. Have the student use centimeters as the units of measure. Four of the rooms must have the following dimensions: 4 by 10, 8 by 10, 6 by 8 and 4 by 6. The fifth room has an area of 144 square centimeters. Have the student be sure to add the extras such as windows, doors and cabinets.




**Follow-up Activities:**
1. Have the student compute the total area of the floor plan completed in the activity.
2. Have the student collect several boxes, make measurements to the nearest centimeter and compute the surface areas.



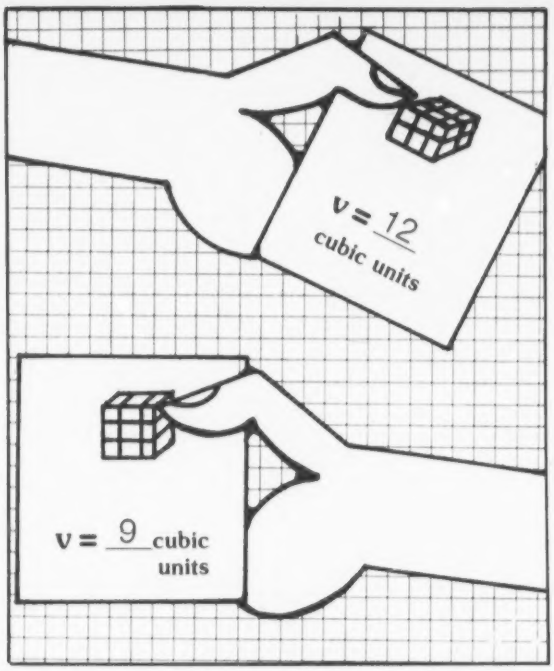

# Keeping Up With The Joneses

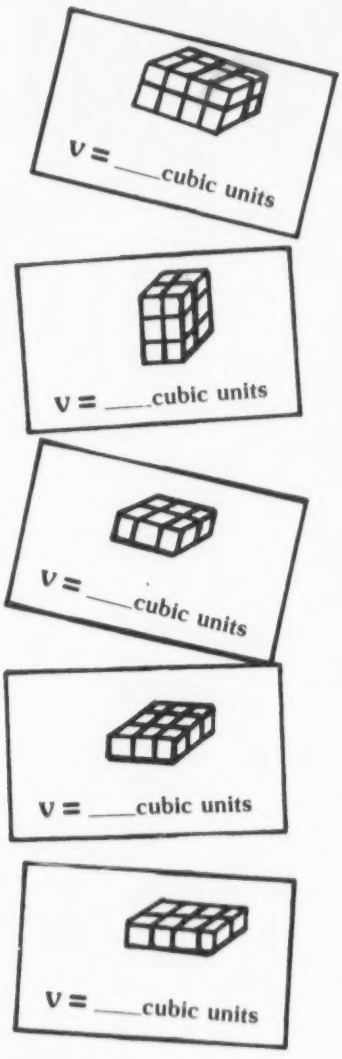
**Skill #6120**
**Measurement—Area**

**Objective:**
The student will compute the area of a floor plan.

**Directions:**
The Jones family is going to install new carpet throughout their house. Have the student compute how much it will cost to install carpet in every room except the kitchen-family room and baths. The carpet costs $12.75 a square yard. The cost of installing the carpet is $2.25 a square yard.

**Follow-up Activities:**
1. Have the student compute the cost of covering the kitchen-family room and baths with tile costing $1.18 a square foot.
2. Have the student choose a wallpaper pattern for each room in the house and compute the cost. Have him use a standard eight-foot measurement for the ceilings.



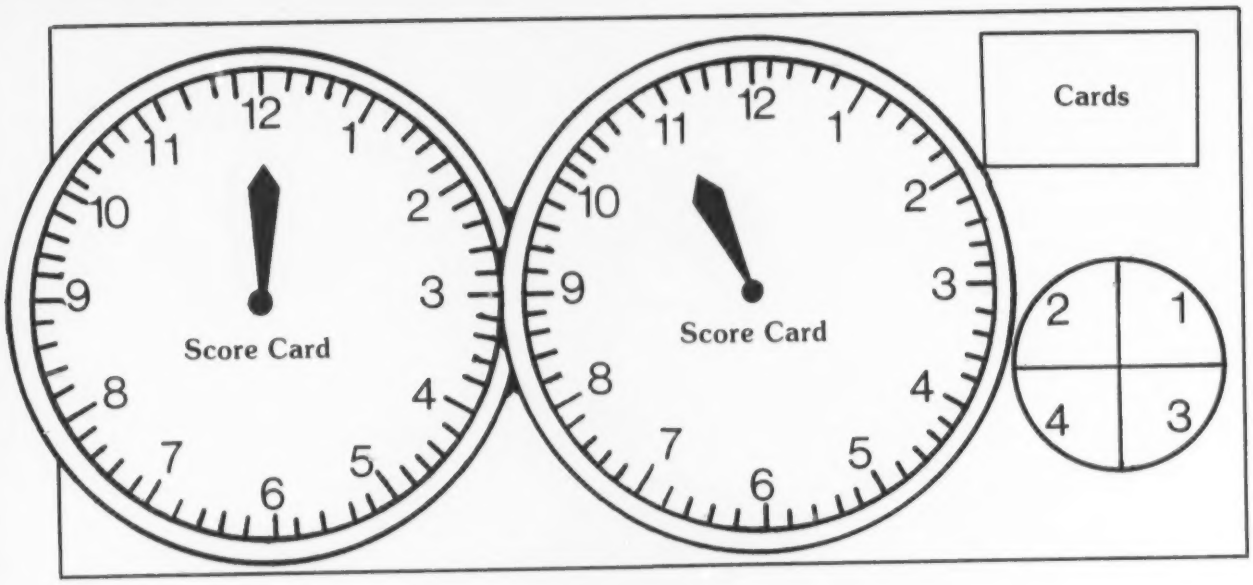

# Up The Volume

**Skill #6130**
**Measurement—Volume**

**Objective:**
The student will identify the number of units in a given object.

**Directions:**
This activity is played in the same manner as the card game "21," with the object being to reach a score of twenty-one cubic units without going over. Each player starts by drawing a card from the stack. On each card, he must find the volume of a closed surface and record it in the space provided. In successive turns, he may continue to add to his score, or he may stop at any point during the game. If the wild card is drawn, the player may choose to add or subtract five points from his score. When the volume cards are added up, the player coming closest to twenty-one without going over is the winner.

**Follow-up Activities:**
1. Have the student find the volume of his classroom in cubic meters. Have him figure how many kiloliters of water a container the size of his classroom would hold.
2. Have each student bring an object to class and have him find its surface area and volume.




How many seconds are there in _____ minute(s)?

How many days are there in _____ week(s)?

How many hours are there in _____ day(s)?

# Beat The Clock

How many minutes are there in _____ hour(s)?

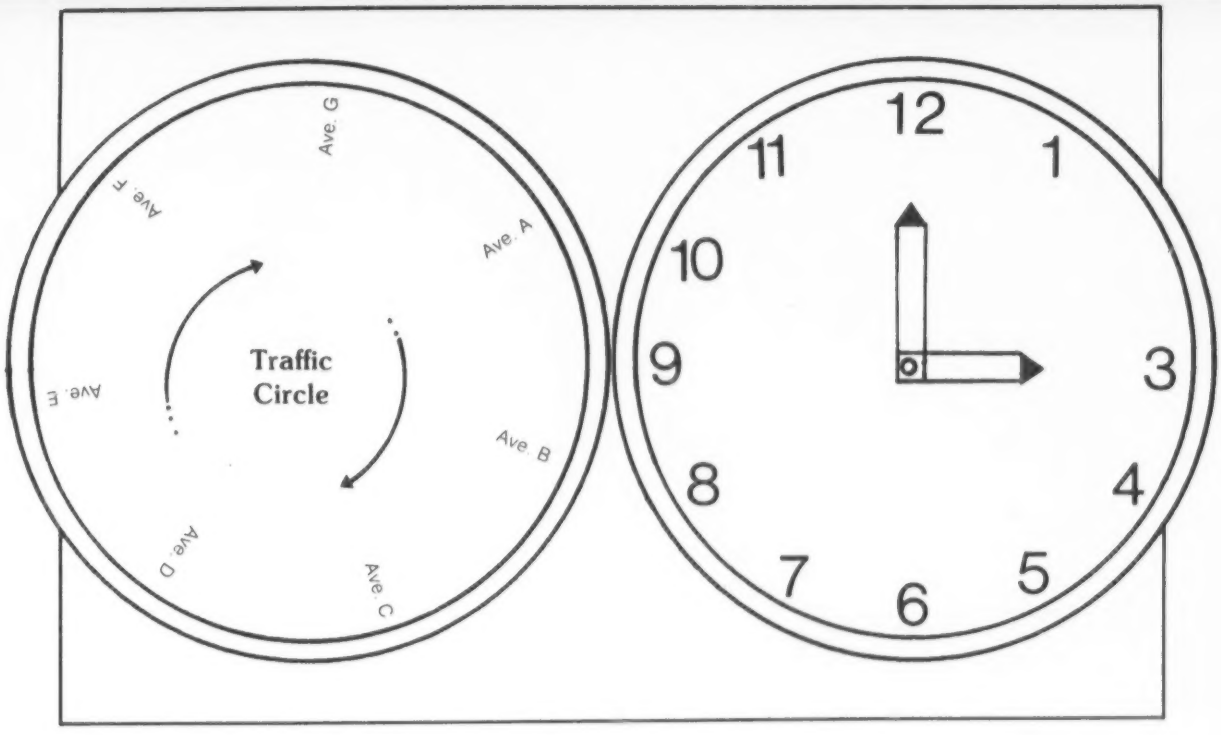
**Skill #6140**
**Measurement—Time**

**Objective:**
The student will identify units of time.

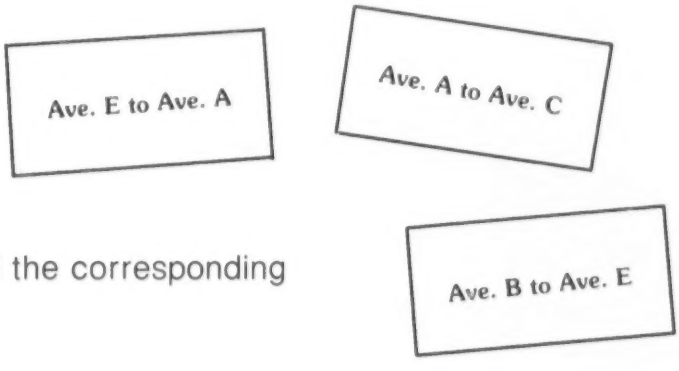
How many years are there in _____ century(s)?

**Directions:**
In alternating turns, each player draws a card, reads the question on it and spins the arrow to determine the number to be used in the blank in his question. He is timed by his opponent to determine the number of points he earns. If the correct answer is given within five seconds, he earns ten seconds on his score card. If he answers correctly within ten seconds, he earns five seconds, and a correct answer after that earns two seconds. The card is returned to the bottom of the stack after each turn. The first player to score 60 seconds on his clock is the winner.

How many weeks are there in _____ year(s)?




# Rush Hour



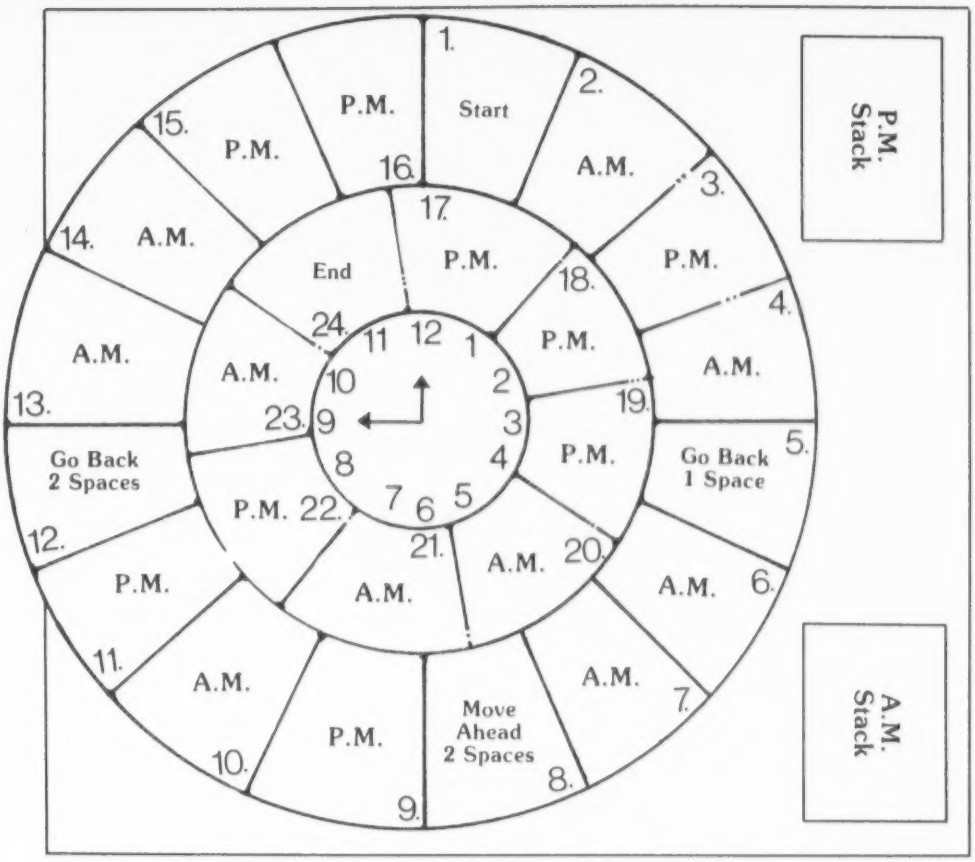

**Skill #6140**
**Measurement—Time**

**Objective:**
The student will identify a time and the corresponding clock representation.

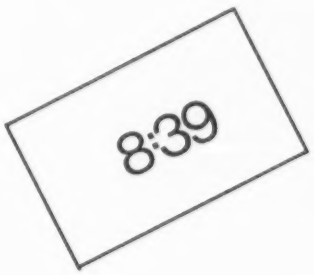
**Directions:**
It's five o'clock rush hour at the traffic circle! Explain to the students that with congested traffic, it takes seven minutes to get from one avenue to an adjacent one with these exceptions:
Avenue B to Avenue C — five minutes; Avenue C to Avenue D—nine minutes; Avenue E to Avenue F—eight minutes. Have the student begin at five o'clock, draw a card and display his expected arrival time on the clock. One point is scored for each correct answer.

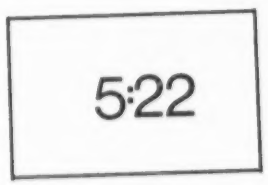
**Follow-up Activities:**

1. Have one student select a point on the traffic circle without telling where it is. Have the others try to guess his location by asking questions such as, "Are you exactly seven minutes from each adjacent avenue?"
2. Have students make an oral report on topics related to telling time; such as, "What Makes A Clock Work?," "Why Do Days Grow Longer and Shorter?," "Big Ben," "Ancient Devices for Measuring Time," "The International Date Line," etc.




# Time After Time



**Skill #6140**
**Measurement—Time**

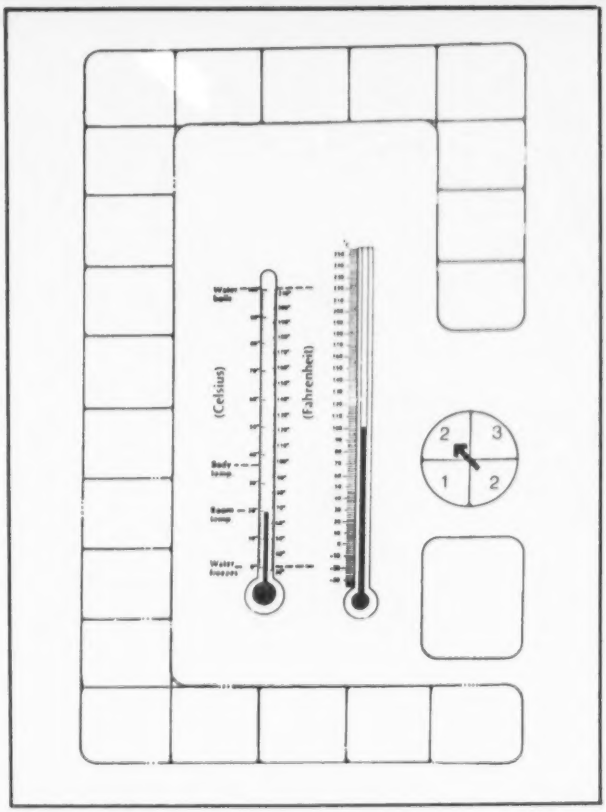
**Objective:**
The student will identify corresponding clock representations from a given time.

**Directions:**
In alternating turns, players roll the die to determine the number of spaces to move. When a player lands on a space, he chooses a card from the appropriate stack. Each card shows a time of day in hours and minutes. The player must then identify the corresponding representation on the clock provided. If he is incorrect, he must move back one space. The first player to reach the end must draw from either stack. If he can correctly identify the time using the clock as before, he is declared the winner. If not, he tries again on his next turn, or until another player is declared the winner.

Tomorrow it will be 38°C. Will you wear a jacket?

Tomorrow the temperature will be about 15°C. Will you need to wear your fur-lined jacket?

At what degree Celsius does water freeze?




At what degree Celsius does water boil?

If your temperature registers about 36°C, should you see a doctor?

# Think Celsius

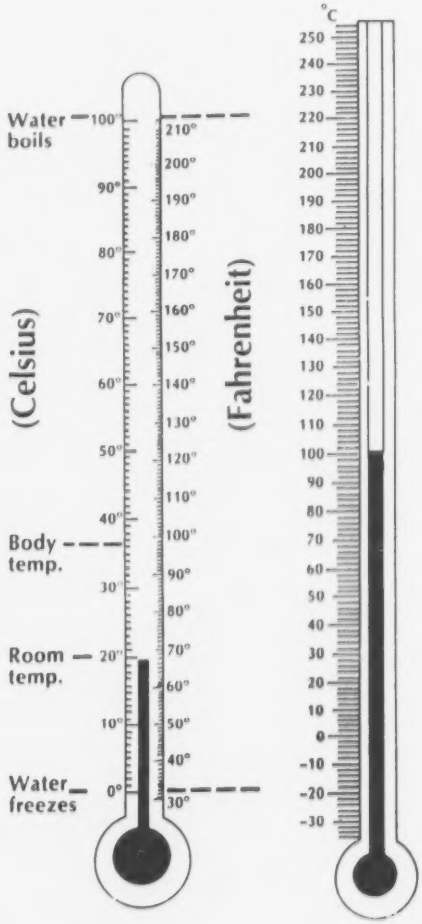
**Skill #6150**
**Measurement—Temperature**

**Objective:**
The student will become familiar with the Celsius gauge to measure temperature.

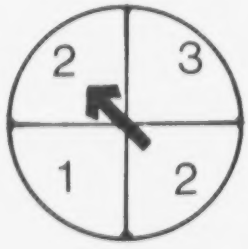
**Directions:**
In alternating turns, each student spins the arrow and moves the number of spaces indicated. He must draw a card and answer the question on it. He may use the thermometers shown on the activity board to help him with the answer. Each correct answer resulting from using the thermometer earns two points. When the player can give the answer without using the thermometer, he earns five points. When the last player reaches "Finish," the high scorer is declared the winner.

**A Follow-up Activity:**
Prompt a discussion of how the Celsius temperature is related to the Fahrenheit temperature. Have students write a report on the subject and report it to the class.

# Think Celsius Gameboard

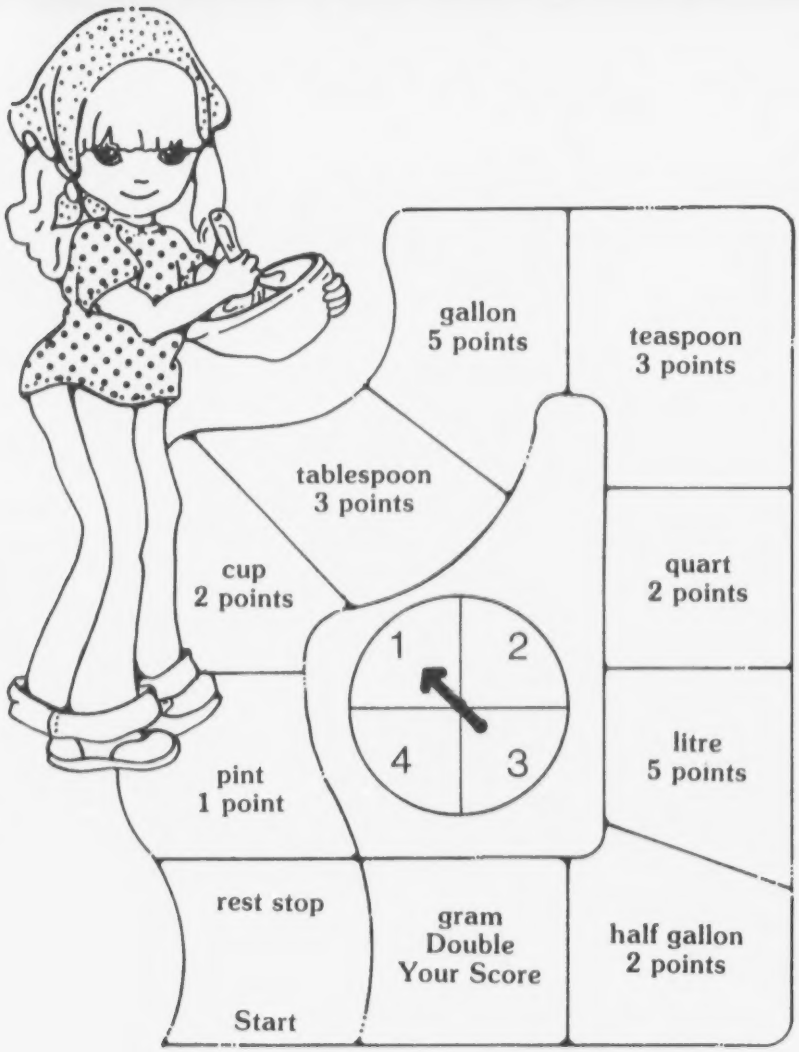



Finish




Cards

Start

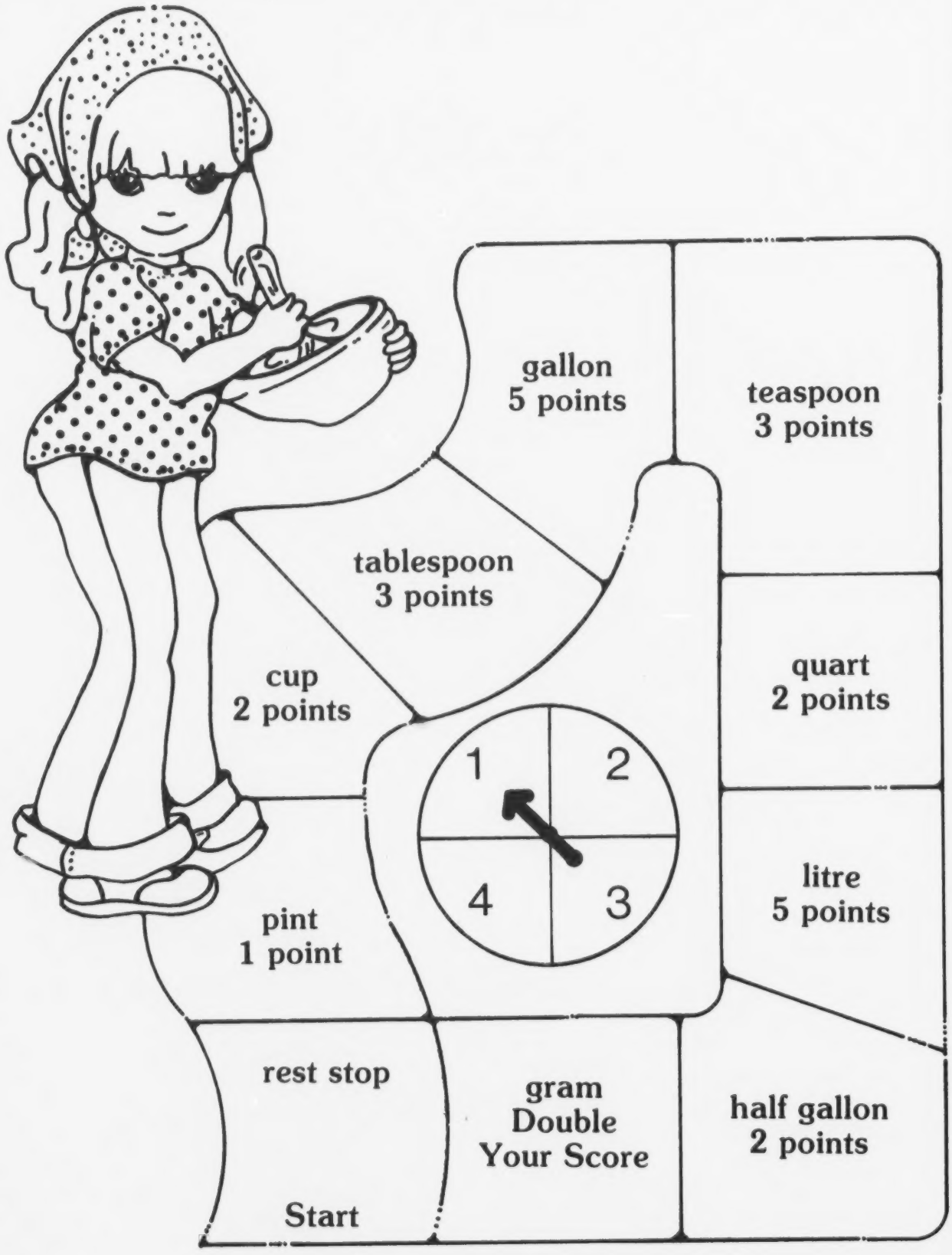


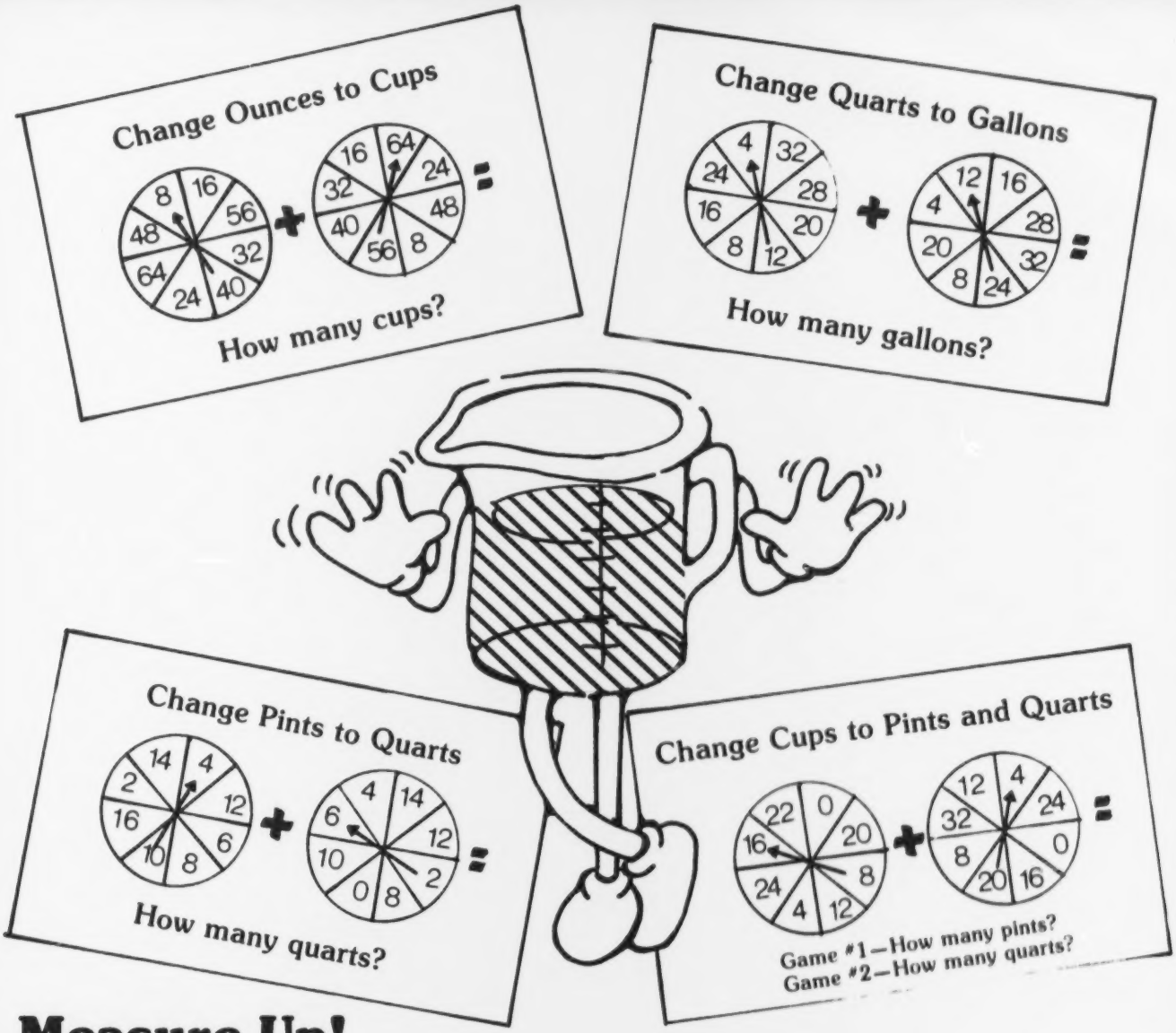

# Katy's Kitchen

**Skill #6160**
**Measurement—Weight**

**Objective:**
The student will identify objects and corresponding units of measure.

**Directions:**
In alternating turns, each player spins the arrow and moves clockwise around the board the number of spaces indicated. He must give one item found in the kitchen that is usually measured in the unit named on the space on which he lands. Each correct response earns the score indicated. When one player reaches a score of 50, or when no more responses can be given, the game is over and the high scorer wins.


gallon
5 points
teaspoon
3 points
tablespoon
3 points
cup
2 points
quart
2 points
1
2
4
3
pint
1 point
litre
5 points
rest stop
gram
Double
Your Score
half gallon
2 points
Start



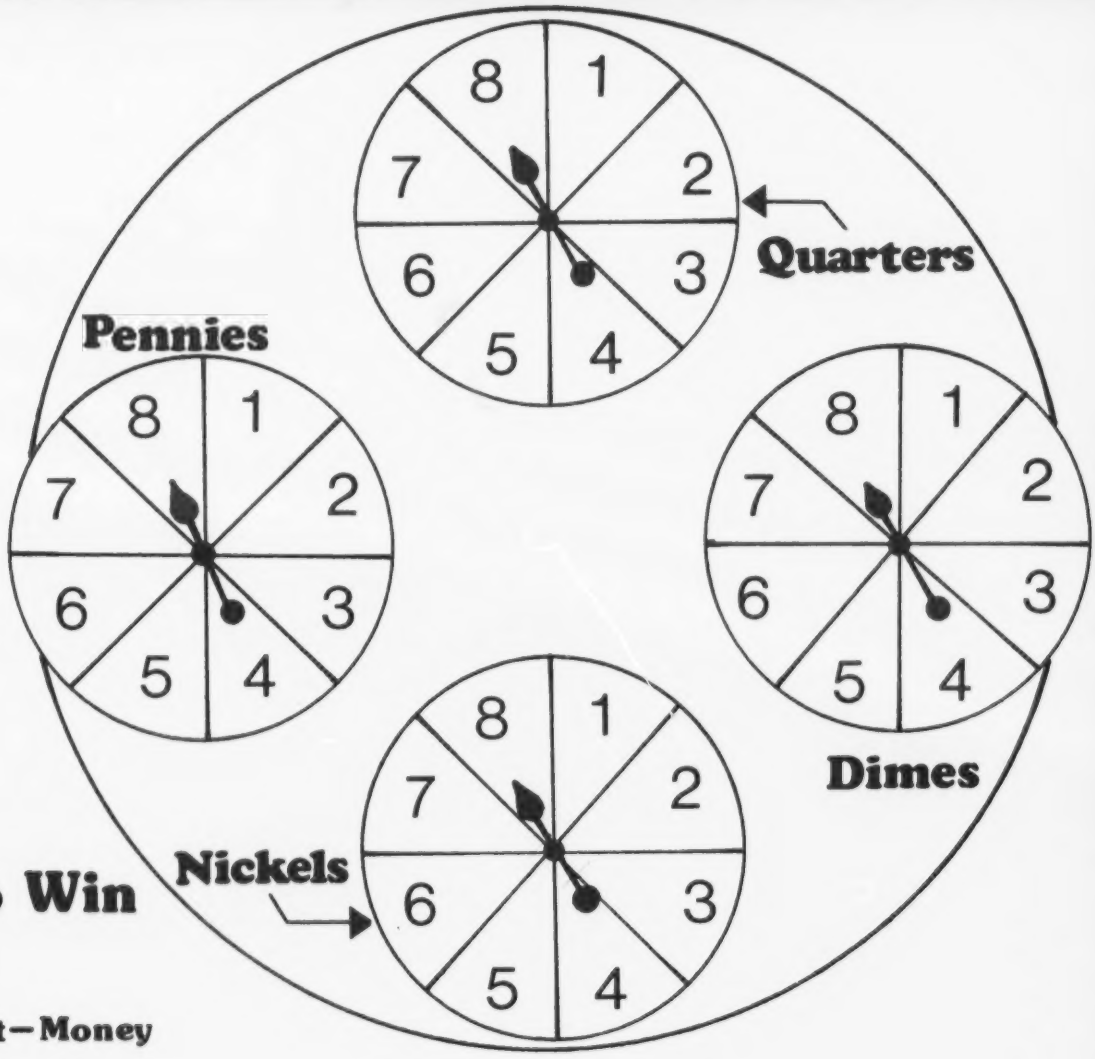

# Measure Up!

**Skill #6170**
**Measurement—Capacity**

**Objective:**
The student will identify the number of subunits in a unit.

**Directions:**
This activity can be played with one or two students. Have the student choose one of the four cards shown above and then spin the spinners. He must convert the sum into the correct measure.

**Follow-up Activities:**
1. Reverse the procedure above. Have the spinners represent the larger unit of measure and have the student find the answer in the smaller unit.
2. Change the cards to the metric system. Have the student play as above.



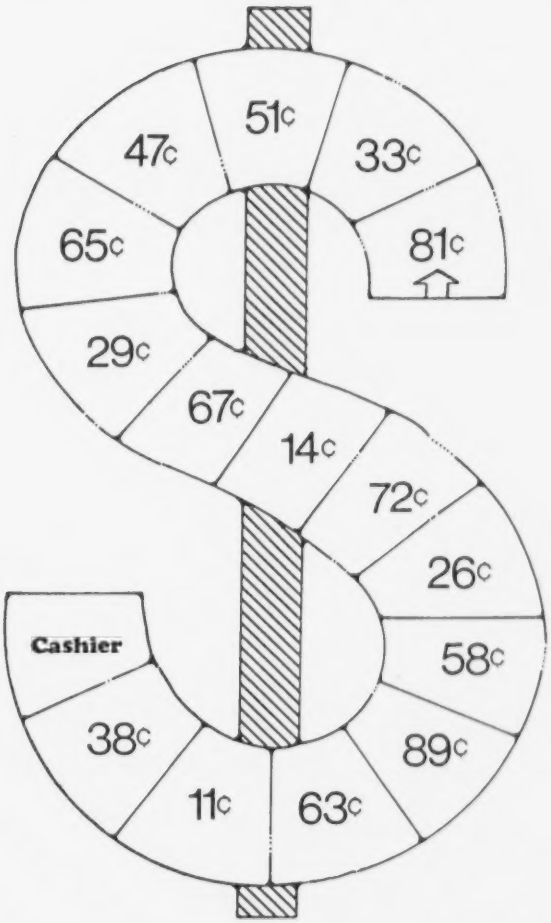

# Spin To Win

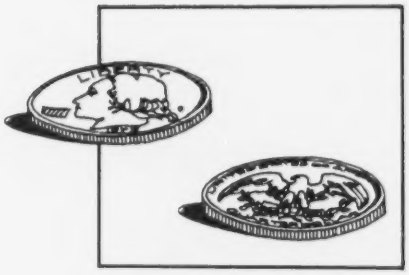
**Skill #6180**
**Measurement—Money**

**Objective:**
The student will identify the value of a collection expressed in dollars and cents.

**Directions:**
The object of the game is to spin for coins that total five dollars or less. Provide the students with cards for keeping a record of their totals. In alternating turns, each player must spin each arrow in the first round. In subsequent rounds, the player must begin with the quarters and may stop at any point he chooses. At the end of the last round, players total the value of their coins to determine the winner.

**Follow-up Activities:**
1. Have the student make change for a dollar bill using exactly 50 coins. Solution: 45 pennies, 1 quarter, 2 dimes and 2 nickels or 40 pennies, 2 dimes and 8 nickels.
2. Have the students select one or more items from an advertisement flyer from a newspaper. Then each student may spin the arrows to see who can come closest to the specific amount.



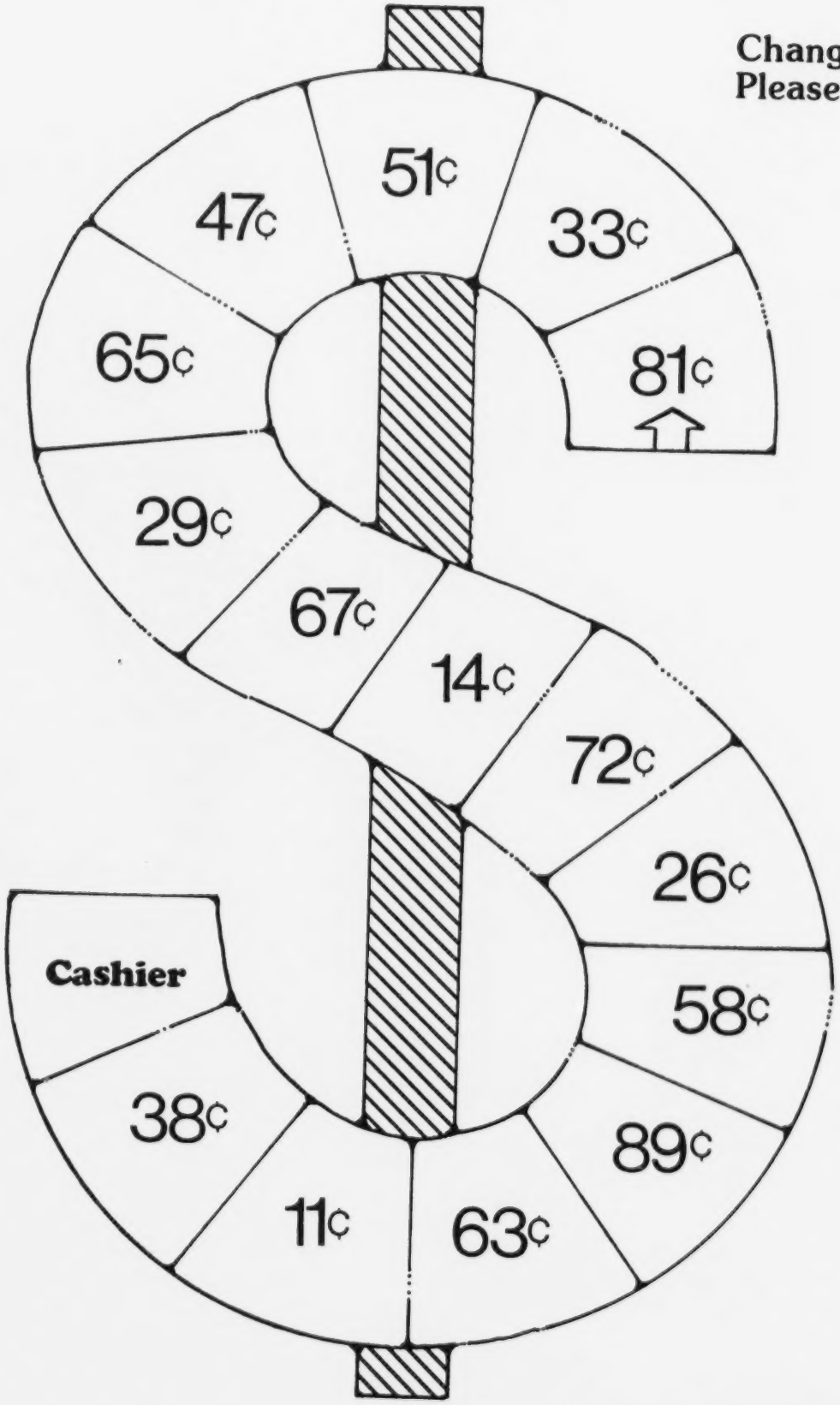
# Change, Please!

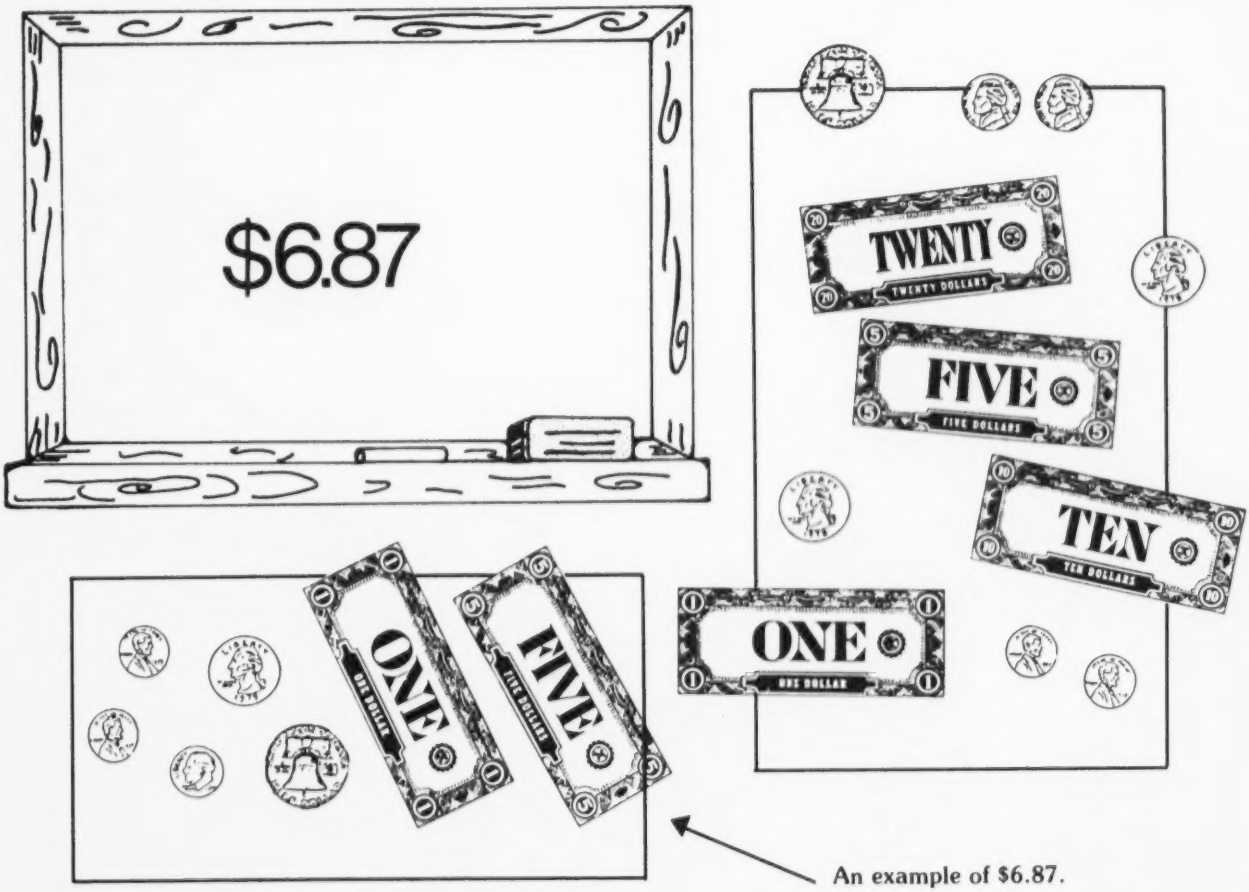
**Skill #6180**
**Measurement—Money**

**Objective:**
The student will compute the difference in amounts of money.

**Directions:**
In alternating turns, each player flips a coin to determine the number of spaces to move. Heads indicate one space and tails indicate two. The player must give the difference between one dollar and the amount on his space. If his opponent has landed on that space and has correctly given the difference, the player must move to the closest space on which no one has landed. This may be a backward or a forward move. When each player reaches the cashier, he totals his change. The player with the largest amount of change wins the game.

# Change, Please!






An example of $6.87.

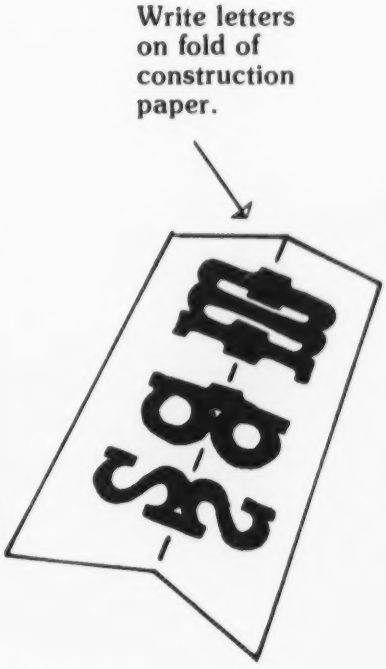
# Money, Money, Money

**Skill #6180**
**Measurement—Money**

**Objective:**
The student will identify a collection of coins and U.S. bills equal to the given value.

**Directions:**
In this activity, students show the smallest amount of currency and coins possible to show money amounts. Provide students with play money. Write an amount on the blackboard, as shown in the example above. The first student to give the correct least amount wins the round.

**A Follow-up Activity:**
To make the above activity more of a challenge, have the students play without play money. The students must identify the least amount verbally.



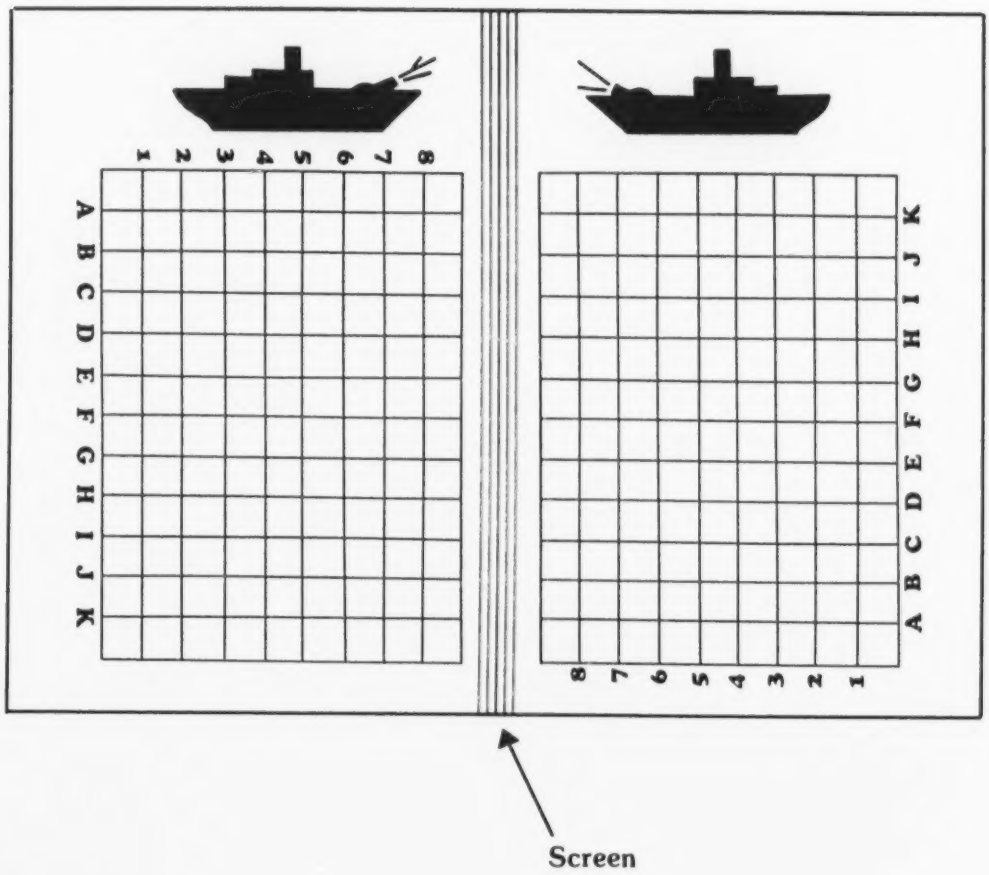

# The Game Of The Name

**Skill #7110**
**Geometry—Basic**

**Objective:**
The student will identify lines of symmetry.

**Directions:**
Have each student write his name in block letters along the fold of a piece of construction paper and cut the letters out leaving the fold attached. Then have him open the letters and mount them on poster board adding details to create a picture or design.

**Follow-up Activities:**
1. Have the students compile the finished products into an album or arrange them on a bulletin board.
2. Have the students find physical objects within the classroom that have planes of symmetry.



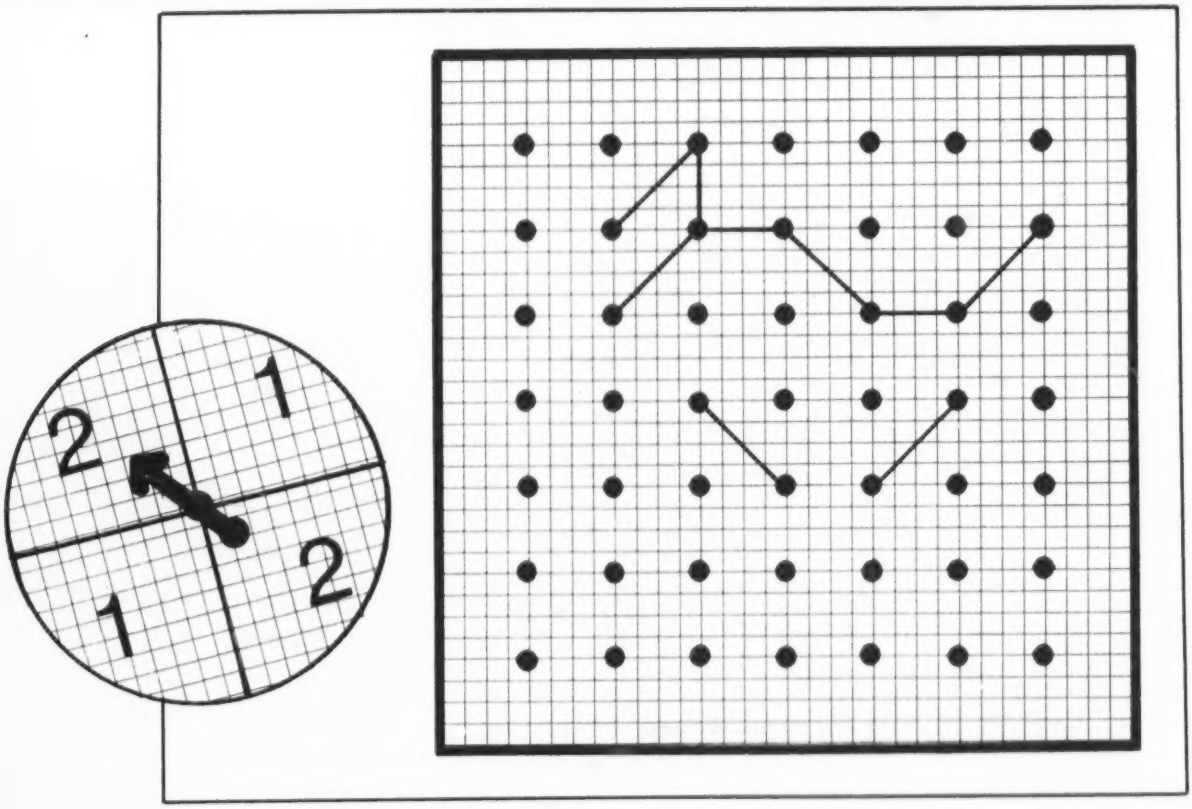

# Battleship

**Skill #7110**
**Geometry—Basic**

**Objective:**
The student will identify coordinate points.

**Directions:**
This activity is played like the game "Battleship." A "screen" is placed between the two grids. Each player draws a square or rectangle on his grid positioning the corners on coordinate points. In alternating turns, each player attempts to guess one of his opponent's occupied points by giving a pair of coordinates. He should mark his correct and incorrect responses with two colors different from the one used for his own "ship." The opponent responds by saying, "Hit," if the guess is correct, and "Miss," if it is not. The first one to identify all four points "sinks" his opponent's "ship" and is declared the winner.

Battleship Gameboard



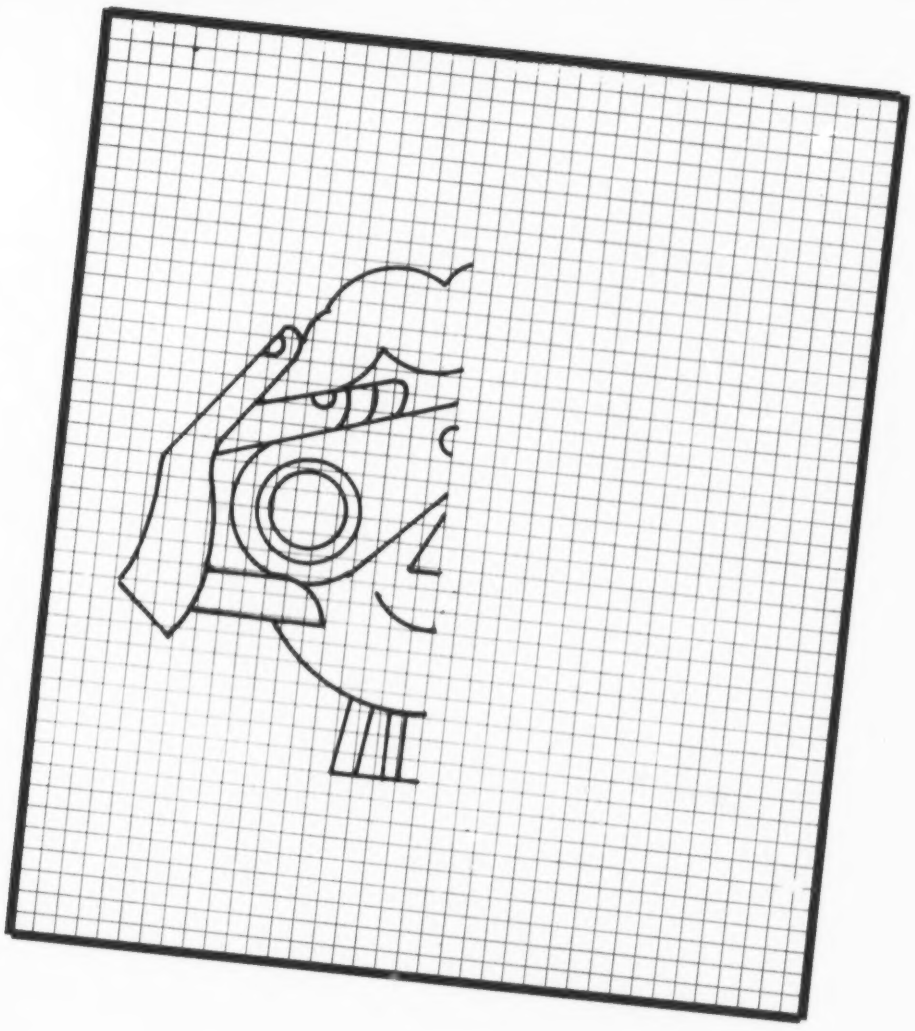

# Quest

**Skill #7110**
**Geometry—Basic**

**Objective:**
The student will identify types of quadrilaterals.

**Directions:**
Provide each student with a different color marker. In alternating turns, each player spins the arrow to determine the number of lines he can draw between dots. The object of the activity is to make as many quadrilaterals as possible by drawing connecting lines. A player may use a line from one completed quadrilateral to form another, provided that quadrilateral is one he has earned. Each player is allowed to block his opponent's design only three times during the activity, so blocks should be used strategically. Points for quadrilaterals are accumulated as follows: square—1 point, parallelogram—3 points, trapezoid—4 points. To reuse the activity, hairspray can be used to erase the lines, provided the activity is laminated first.

**A Follow-up Activity:**
Have the students make three-dimensional objects of the shapes used in the above activity and construct a mobile of the completed objects.



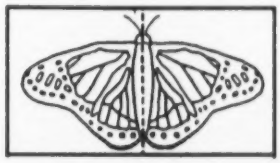
# See The Symmetry?

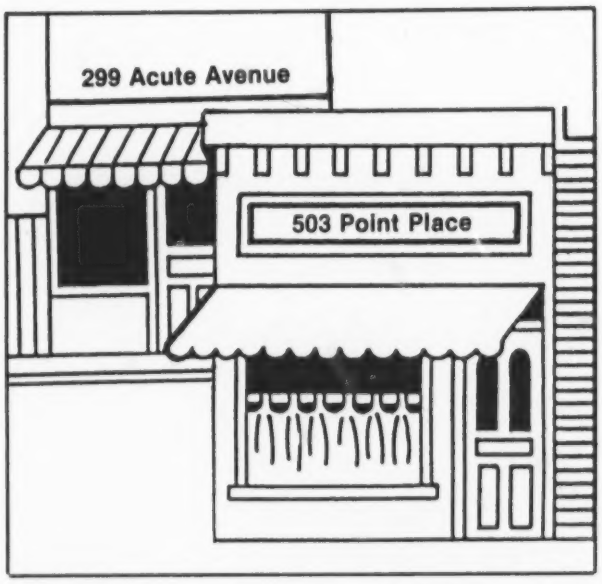
**Skill #7110**
**Geometry—Basic**

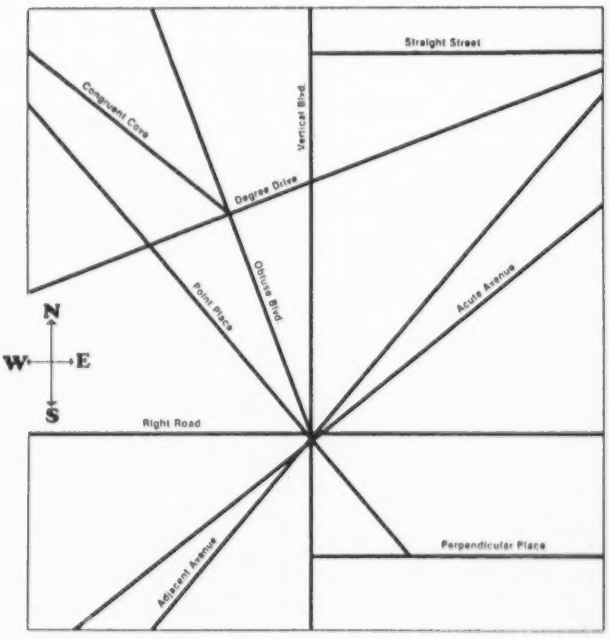
**Objective:**
The student will identify symmetrical objects.

**Directions:**
To have students better understand bilateral symmetry, have them create half pictures. Provide the students with graph paper and have each student draw half a symmetrical picture on one side of the page. Then have each student exchange his picture with a partner who will complete the drawing.

**Follow-up Activities:**
1. Have students look for symmetry in nature. A good example is a butterfly. Have them collect objects for a classroom "show and tell."
2. Have the students make an attractive bulletin board display of the pictures from the activity and the objects from follow-up one.






Acute Avenue and Right Road
Right Road and Point Place

**Examples for playing cards.** →

Perpendicular Place and Vertical Boulevard

Obtuse Boulevard and Acute Avenue

Obtuse Boulevard and Vertical Boulevard

Adjacent Avenue and Point Place

Congruent Cove and Degree Drive

Point Place and Vertical Boulevard

# Geographical Geometry

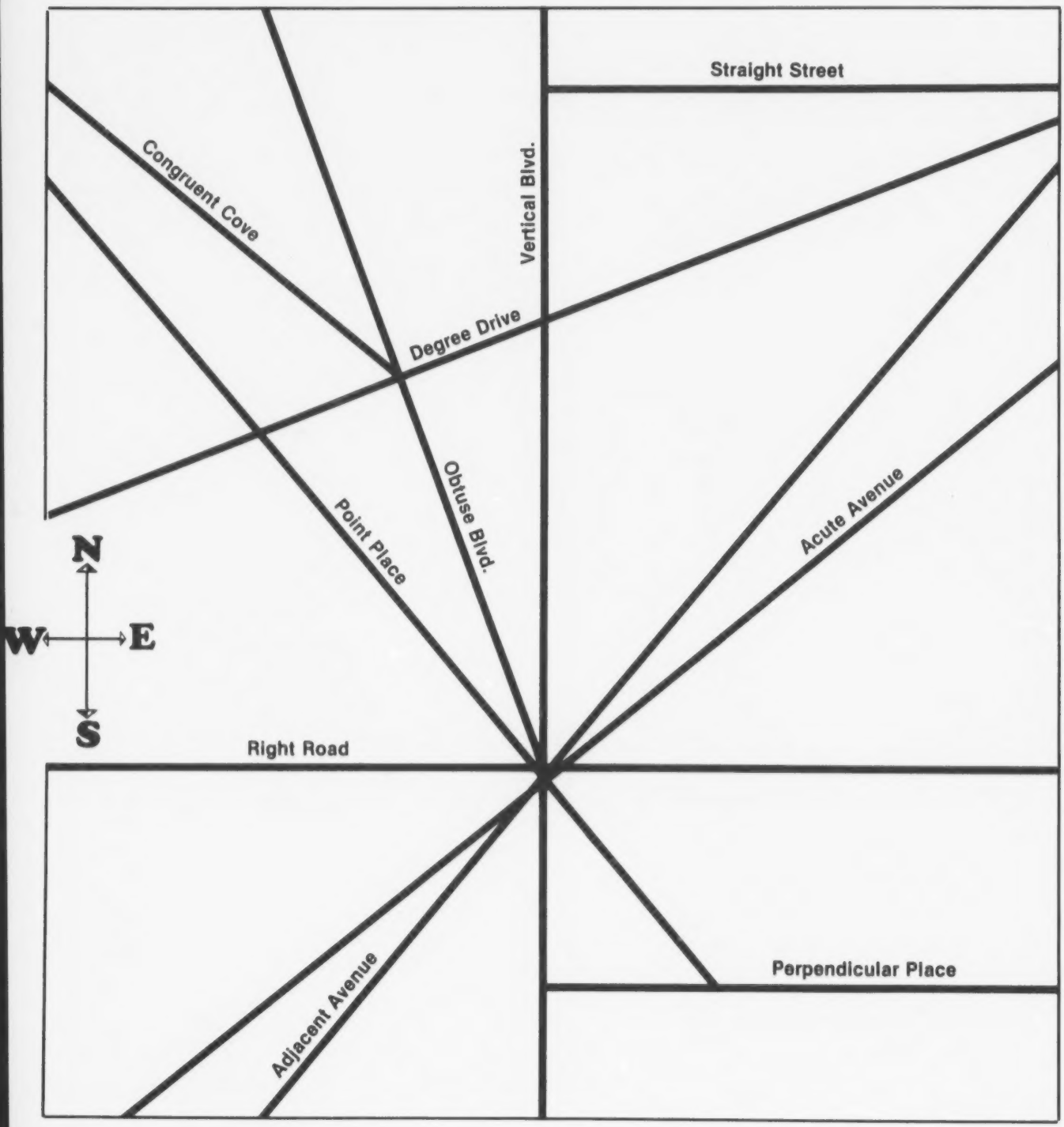
**Skill #7110**
**Geometry—Basic**

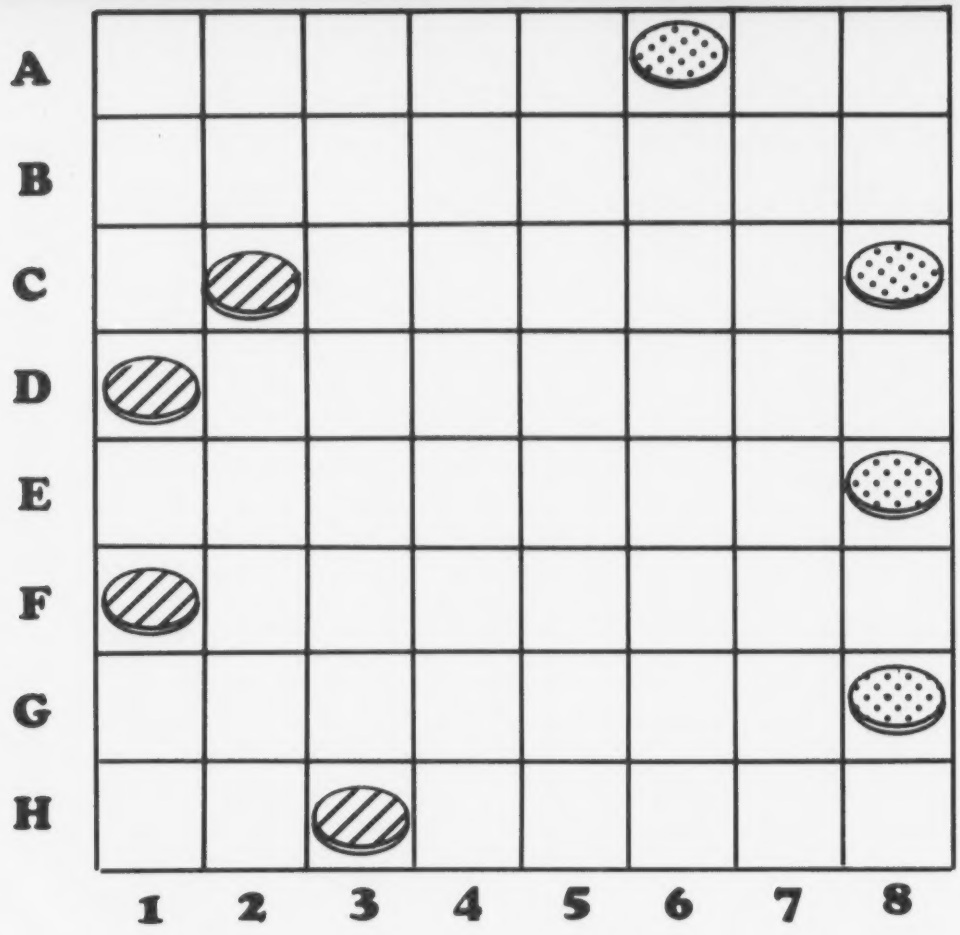
**Objective:**
The student will use a protractor to measure the size of an angle.

**Directions:**
In this activity, two players will measure the angles at various street intersections on the map. Playing cards are placed face down. In alternating turns, players will draw a card, find the intersection described on the card, measure the angle and keep a tally of the degree of each angle. When all cards have been drawn, the player with the larger total number of degrees is the winner.

**A Follow-up Activity:**
Display a city map and assign coordinates to two sides. Have each student identify the coordinates of his residence and other points of interest.

# Geographical Geometry



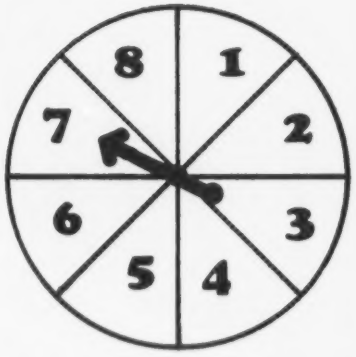



# "Check" Your Coordinates

**Skill #7110**
**Geometry—Basic**

**Objective:**
The student will identify a point for given coordinates by placing it on a grid.

**Directions:**
This activity is played on a traditional checkerboard with four checkers of each color. Each player positions his four checkers in a line on opposite sides of the board. In each turn, a player spins the two arrows to determine his move. He finds the square determined by the two coordinates and moves his checker to that space only if it is a forward move to a black unoccupied square. The object of the game is for each player to get all of his checkers lined up on the opposite side of the board. The first player to do this wins the game.



# Smiles . . . Everyone!

**Skill #8110**
**Probability and Statistics—Basic Graphs**

**Objective:**

The student will collect data and display it in a circle graph.

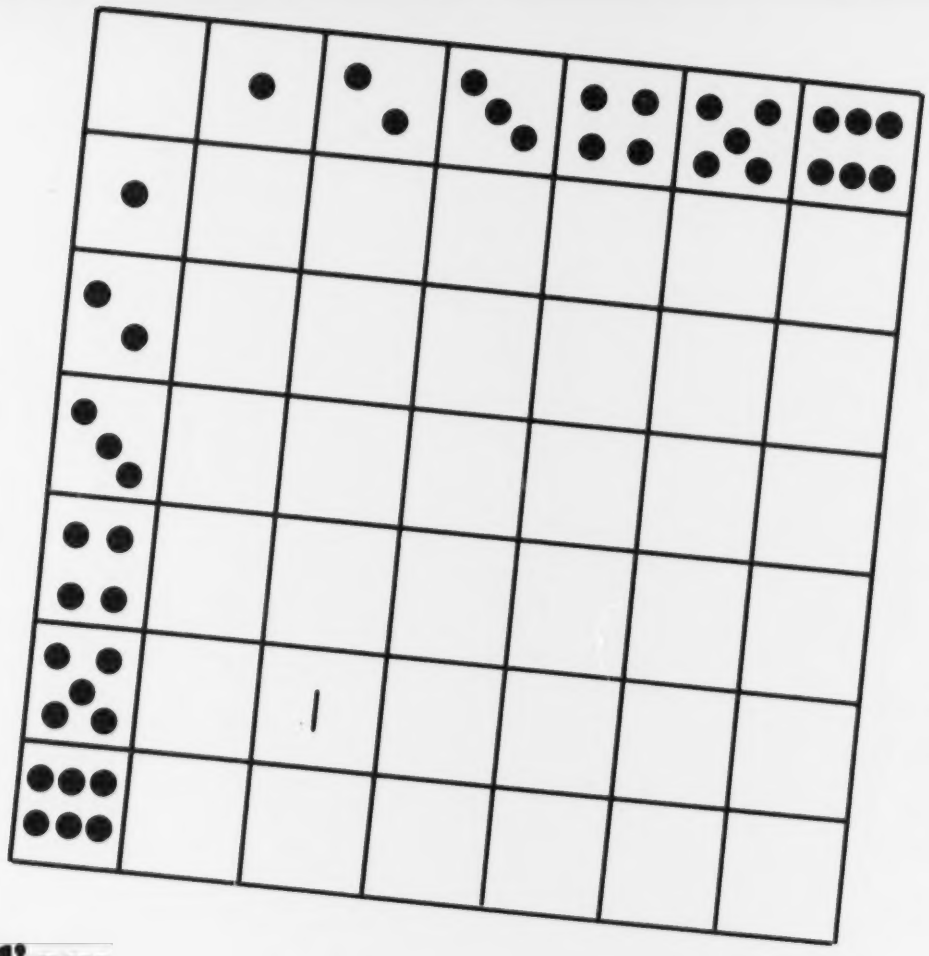
**Directions:**

Have each student measure his smile in centimeters. After all the data is collected, have the students display their findings on a "happy face" circle graph, for example, if 5 of 12 students have smiles measuring 7 centimeters, it will be depicted on the graph as a 150° angle, shown to the right. The example would be worked like this: $\frac{5}{12} \times \frac{360}{1} = \frac{1800}{12} = 150°$.

An example of a 150° circle graph.

**Follow-up Activities:**

1. Have the students look through magazines and newspapers to find different types of graphs; for example, bar graph, line graph, pictograph and block graph.
2. Have the students label the graphs they find in follow-up one and make a bulletin board display.



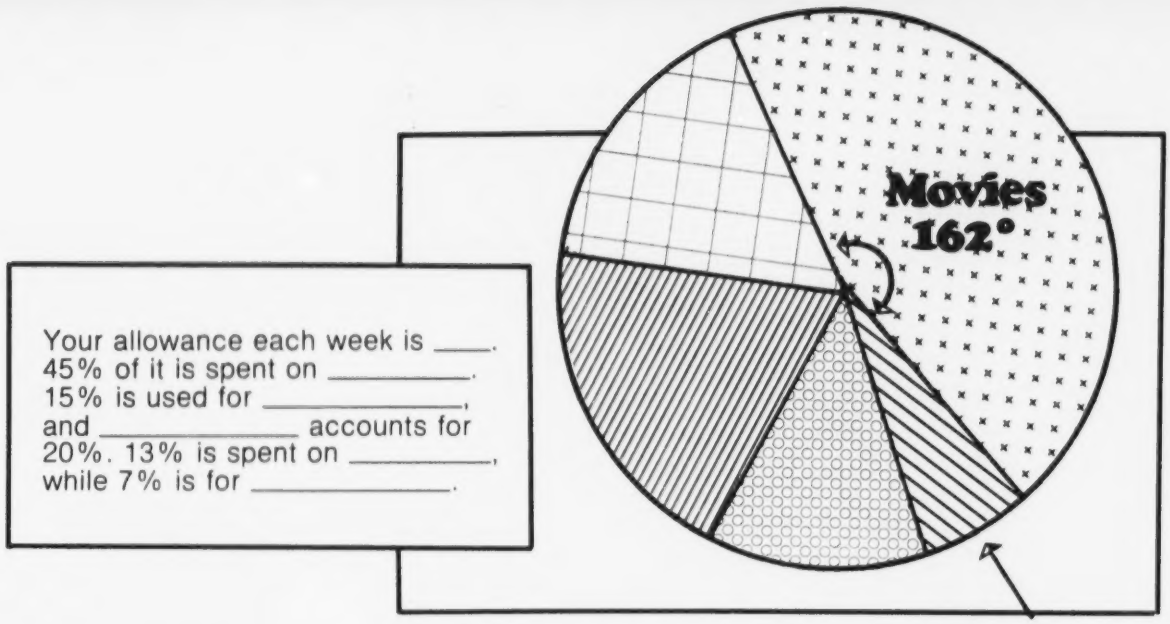
# Roll'em

**Skill #8110**
**Probability and Statistics—Basic Graphs**

**Objective:**
The student will compute probability and use tallying.

**Directions:**
Have a thorough discussion of the applications of probability in all areas of life; such as, odds used in the prediction of athletic events, life expectancy charts used by insurance companies and the probability of winning used in all types of games. To illustrate an example of probability, have the student roll a pair of dice 50 times and have him tally the combinations as he does so. An example is shown above of a roll of five and two and its tally. After all 50 rolls, have the student answer the following questions: How many times did you roll a sum less than 7; 5; 3? What is the probability of a sum greater than 10?

**A Follow-up Activity:**
Have the student toss a paper cup at least 50 times and record the way it lands each time. Have him determine if each outcome is equally likely to occur.



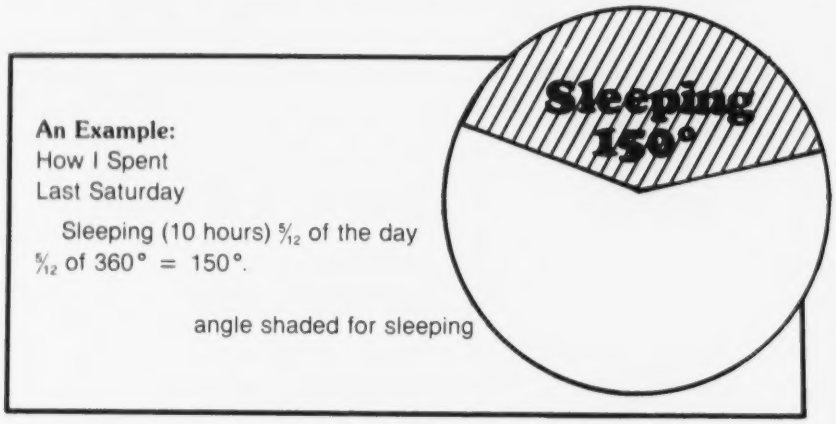

An example.

# Account For It

**Skill #8110**
**Probability and Statistics—Basic Graphs**

**Objective:**
The student will interpret a circle graph.

**Directions:**
Have the student fill in the blanks above using a reasonable estimate of his expenditures. Then direct him in constructing a circle graph to show how his allowance is used.




**Follow-up Activities:**

1. Have the student make a circle graph of how he spent last Saturday.
2. Take a poll of the students' favorite songs. Then have the students represent the songs on a circle graph showing which ones are the most popular. Have them use the graph to develop a bulletin board display.

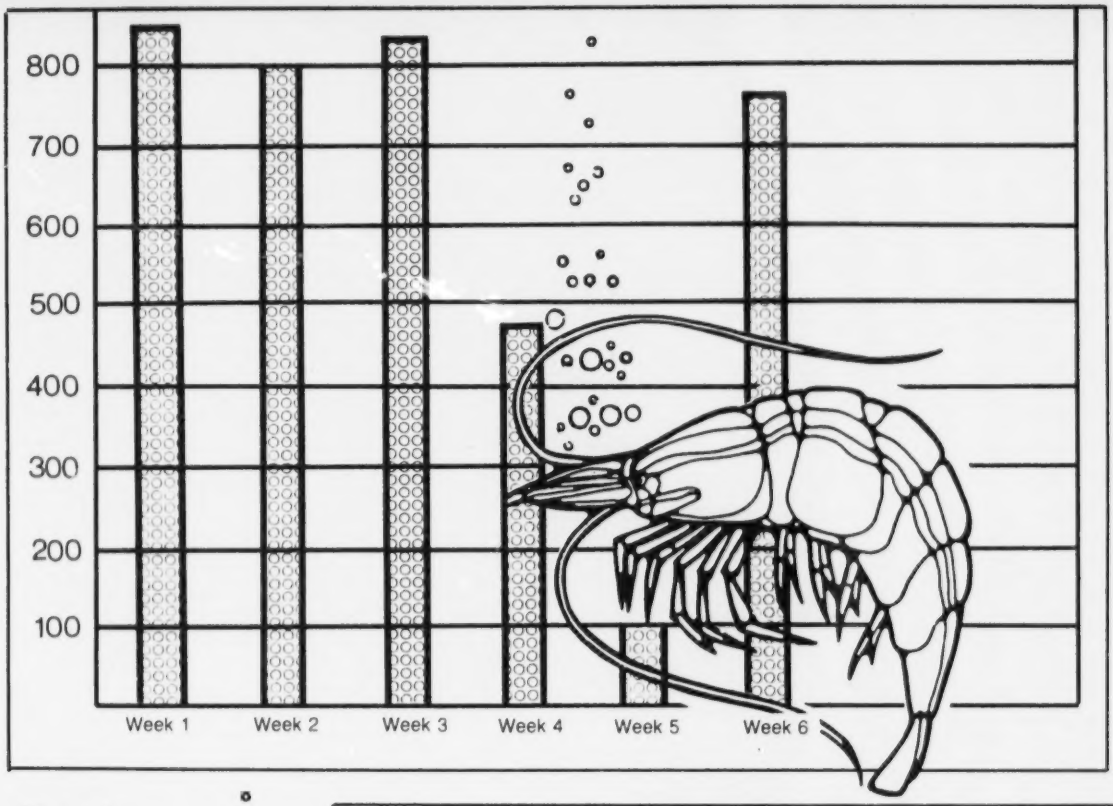



Chart for Follow-up One →

**Shrimp Catch** Week 1

| Date | Pounds | Weather Conditions | Boat Conditions | Other Information |
|---|---|---|---|---|
| | | | | |
| Total | | | | |

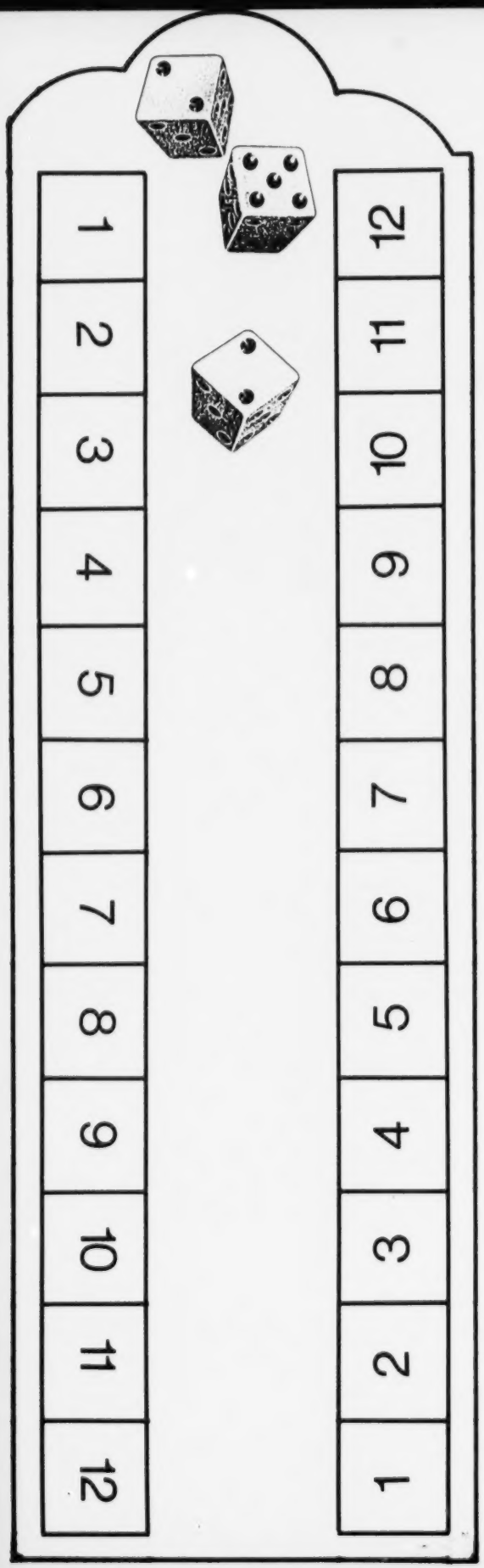
# Chart Your Catch

**Skill #8110**
**Probability and Statistics—Basic Graphs**

**Objective:**
The student will construct a graph from collected data.

**Directions:**
This activity should be adapted to a student's environment. The example given is a coastal city where the father is a shrimper. Have the student keep a record of his father's shrimp catch on a daily basis. After the eight-week period have the student graph the statistics.

**Follow-up Activities:**
1. Using the chart labeled "follow-up one," have the student draw some conclusions about the probable reasons for the variance or similarity of each week's catch.
2. Have the student chart the same information from follow-up one in a bar graph.

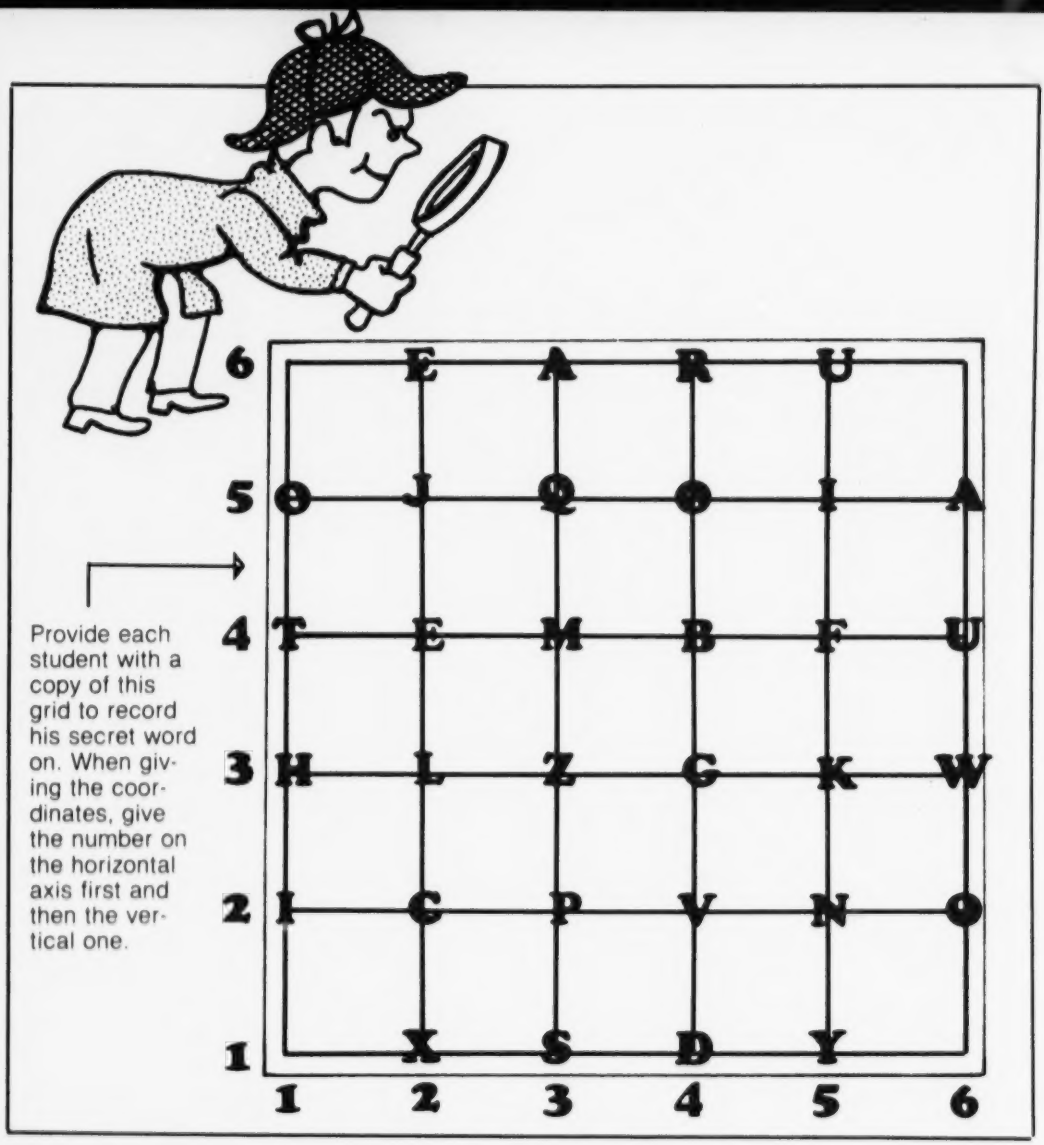


# Roll'em And Tally

**Skill #8110**
**Probability and Statistics—**
**Basic Graphs**

**Objective:**
The student will identify the process of tallying to find the sum.

**Directions:**
The object of the activity is for each player to cover his squares from left to right and then uncover the squares from right to left in numerical sequence. In alternating turns, each player rolls three dice. The three numbers rolled may be used singly or added in a combination of any two or three to get the number needed. Each player must roll a "1" to start, and he must make a tally mark for each roll he makes on the score sheet provided. The player who covers and uncovers his squares in the least number of rolls is the winner. In subsequent games, the players may try to break the record of previous low scores.


Provide each student with a copy of this grid to record his secret word on. When giving the coordinates, give the number on the horizontal axis first and then the vertical one.
6
5
4
3
2
1
E A R U
J Q I A
T E M B F U
H L Z G K W
I C P V N O
X S D Y
1 2 3 4 5 6

# Find The Secret Word

**Skill #8110**
**Probability and Statistics—Basic Graphs**

**Objective:**

The student will identify points on a grid.

**Directions:**

In alternating turns, each student records a secret word on his individual grid. He gives his opponent the coordinates of one letter at a time in scrambled order. That player must locate the letters on the playing board as they are given and may attempt to guess the secret word after any letter is located. If he is correct, he is awarded the same number of points as the number of letters he has identified. Each incorrect guess adds one point to his score. After each student has completed five turns, the low scorer is declared the winner.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|

| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|

# The Case Of The Missing Set

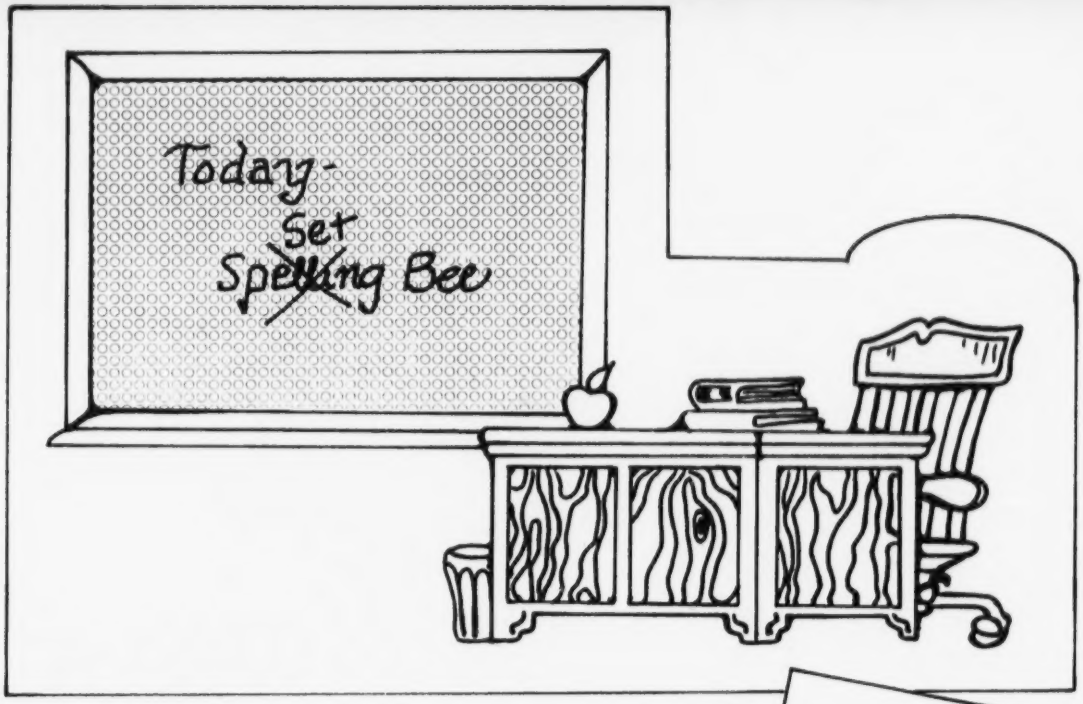
**Example:**
The set of teachers in the room, (1)
The set of pencils on my desk, (2)
The set of students at this table, (3)

**Skill #9110**
**Sets—Single Sets**

**Objective:**
The student will identify elements belonging to a set.

**Directions:**
In alternating turns, each of two players rolls two dice. The object is for the player to try to name a set identifiable in his immediate surroundings that contains the same number of elements as the numbers represented on each die and to name a third set equivalent to the number of dots on both dice. An example is given above. With each correct set identification, the player may cover the corresponding numeral on his playing board. No set may be named twice. The winner is the first player to cover his entire strip.

**Follow-up Activities:**
1. As a player gets ready to roll the dice, have his opponent limit his set choices by identifying a category. If the category is furniture, for example, the player must identify pieces of furniture in the room that have the same number of elements as the numbers represented on the dice.
2. Have the student find the word "set" in a dictionary and note the number of different meanings. Have him identify the meanings as a set.




# Today—Set Bee

**Skills #9110, #9120**
**Sets—Single Sets, Subsets**

**Objective:**
The student will identify sets, subsets and elements belonging to sets.

**Directions:**
This activity resembles the familiar spelling bee, except it is an exercise for sets. Each of two players receives a set of five colored tokens which represent his team members. The cards are shuffled and a third player reads the questions or statements to the players in alternating turns. If a team leader is unable to answer a question correctly, a member (one of the tokens) must "sit down." In this case a token is removed from its team. The team with more members at the end of the game is the winning team.

10 is an element of (2, 4, 6, 8). True or false?

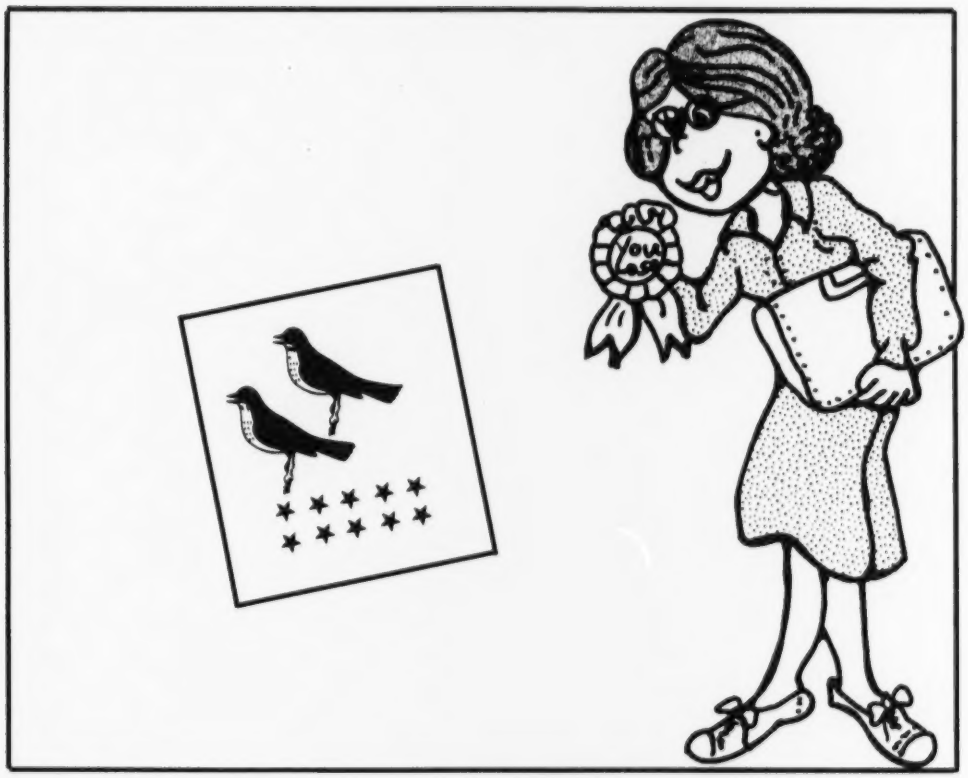
6 is an element of (2, 4, 6, 8). True or false?

Each element of Y is also an element of X. Is Y a subset of X?

The set of all factors of 18. Name this set.

The set of multiples of 6 is a subset of the set of multiples of 2. True or false?

**A Follow-up Activity:**
Provide the students with a strip of butcher paper and colored markers. Have them illustrate various sets by listing the elements of each set inside a loop.

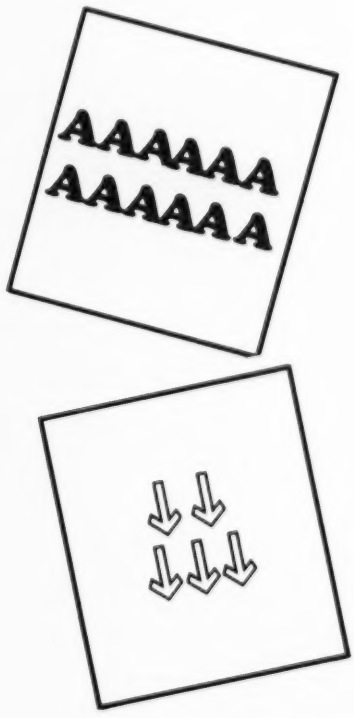


# Get "Set" For Old Maid

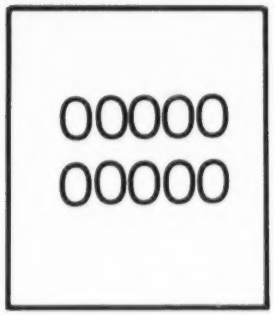
**Skill #9130**
**Sets—Set Relations**

**Objective:**
The student will identify equivalent sets.

**Directions:**
Turn the cards face down on the playing board. The players take turns drawing one card at a time until all cards are selected. Each player removes any pairs of equivalent sets from his hand and places them face up in front of him. Then, in alternating turns, each player draws one card from the hand of the player on his left. Pairs are played as they are acquired. The game continues until all pairs have been played and one player is left holding the "Old Maid" card.




**Playing cards**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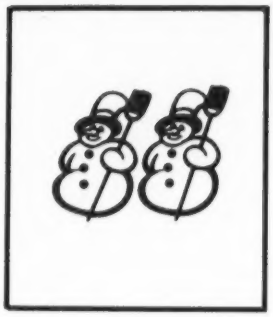

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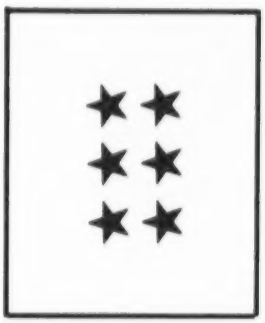

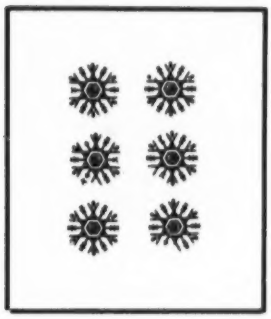

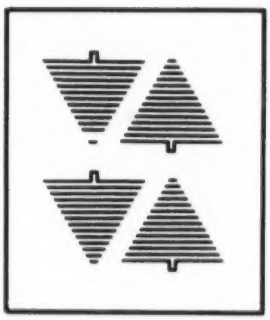

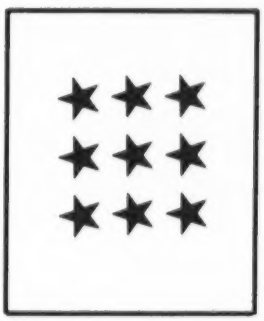

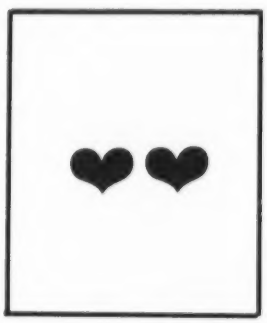

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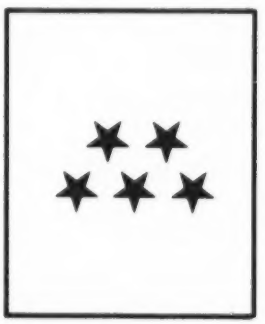

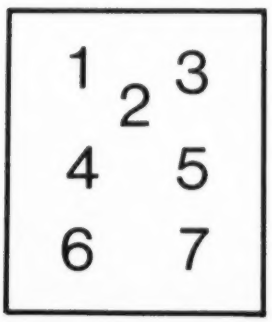
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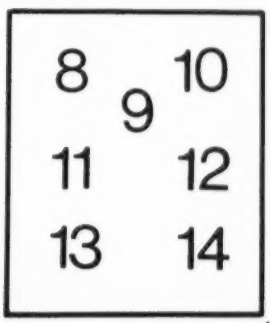
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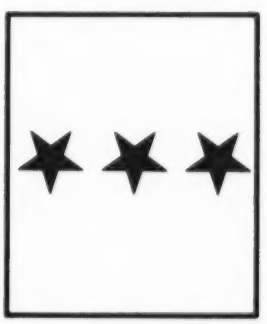
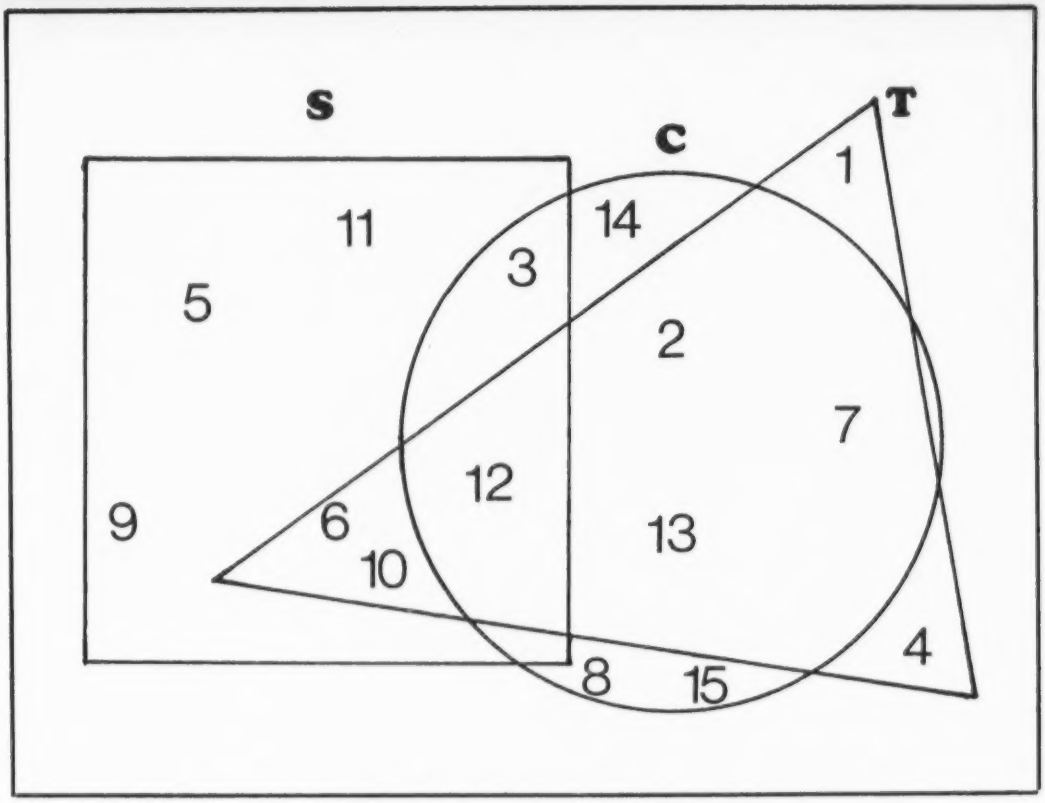





Example ⟶

1. Is the numeral in C? No
2. Is the numeral is S? Yes
3. Is the numeral in S T? Yes
4. Is the numeral 6? No

The numeral is 10

# I Spy

**Skills #9140, #9150**
**Sets—Set Operations, Venn Diagrams**

**Objective:**

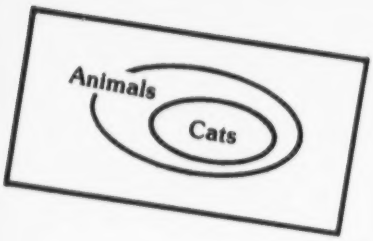
The student will identify the relationships between sets for the purpose of forming conclusions.

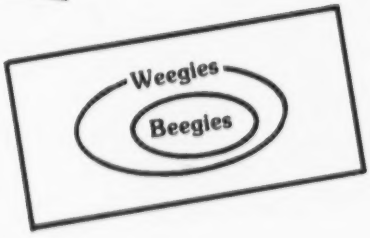
**Directions:**

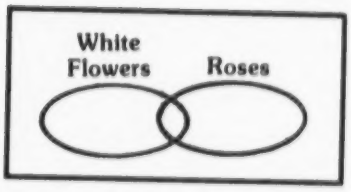
One player selects a numeral from the sets S, C or T. The other player tries to determine what the numeral is by asking "yes" or "no" type questions. A tally is kept on the number of questions it takes to guess the chosen numeral. After a complete round of play, the player who asked the least number of questions in determining a numeral is the winner of that round. After five rounds, the winner of the game is the player who has won more rounds.

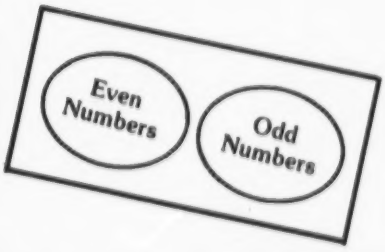
**Follow-up Activities:**

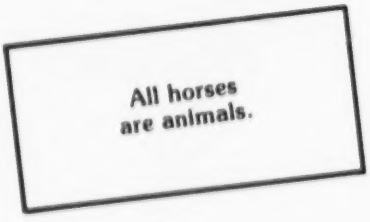
1. Have the students draw a Venn diagram to show the results of polling 50 people on their viewing of three television shows.
2. The loop diagrams in this activity are called Venn diagrams after John Venn (1834-1883). Have a student give a short report on John Venn or Venn diagrams.

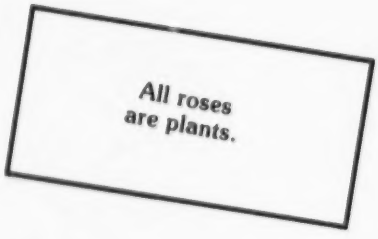


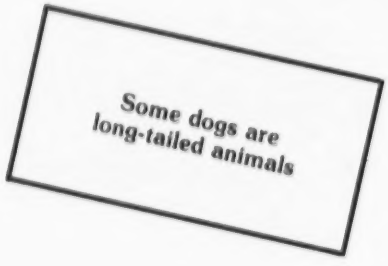



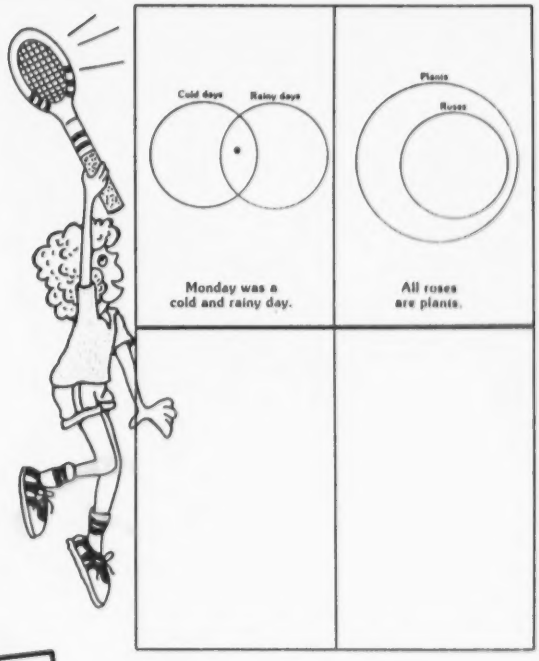



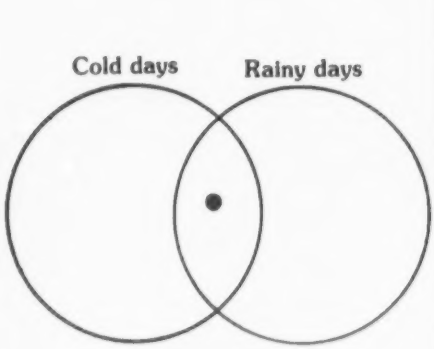

# Sets And Subsets

**Skill #9150**
**Sets—Venn Diagrams**

**Objective:**
The student will identify subsets.

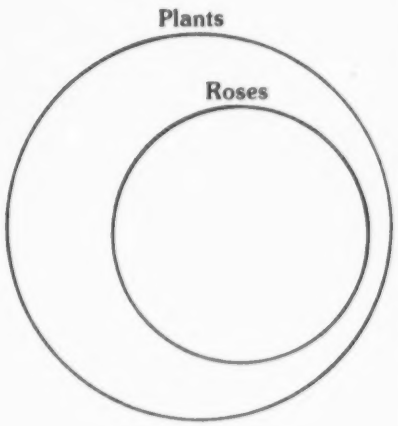
**Directions:**
In alternating turns, each student draws a card from a stack of cards like the ones shown above. If the card shows a diagram, he must make a true statement about it. If the card shows a statement, the player must draw a diagram on the lower half of the playing board to illustrate the statement. Two examples are given.

**A Follow-up Activity:**
In alternating turns, have each student draw a diagram and have his opponent give a true statement about it.

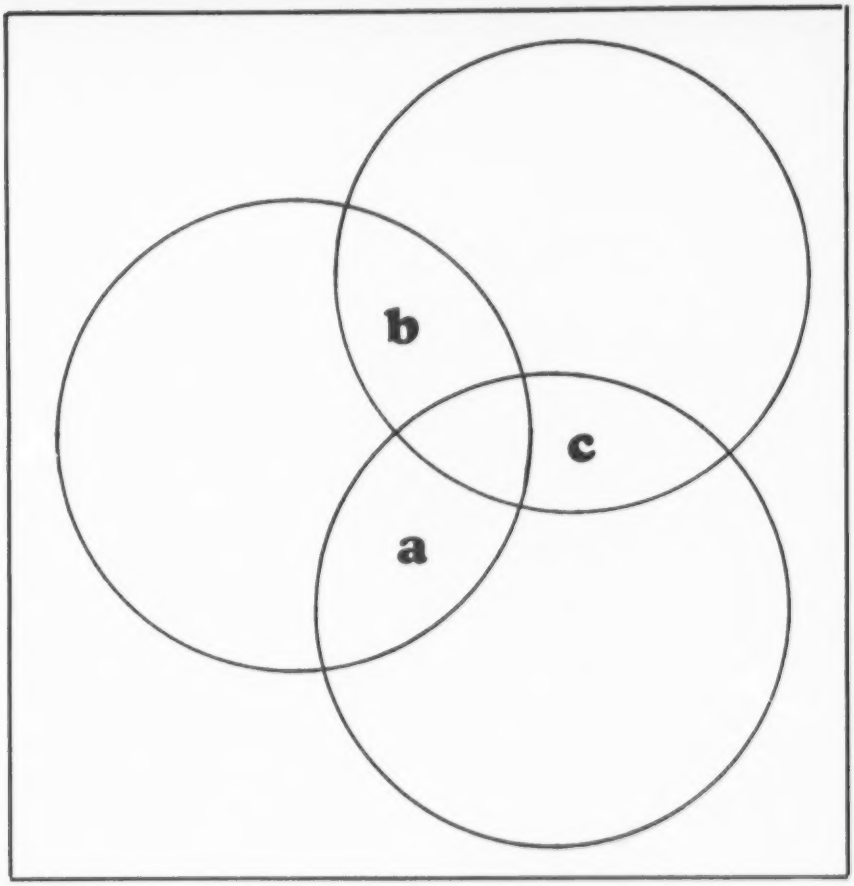



Monday

Monday was a
cold and rainy day.




All roses
are plants.




# A Set Survey

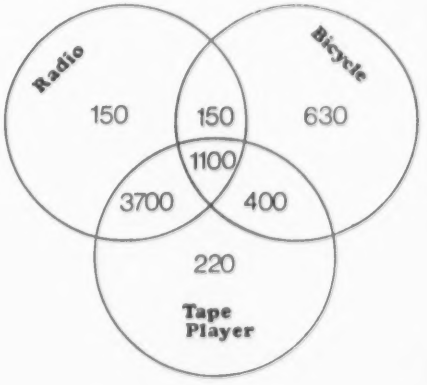
**Skill #9150**
**Sets—Venn Diagrams**

**Objective:**
The student will demonstrate the use of Venn diagrams and identify the elements contained in the union.

**Directions:**
Have the student use the following information to complete the Venn diagram shown. In a school survey of 6,500 students, 2,280 had bicycles, 5,420 had tape players, and 5,100 had radios. In the same group of students, 1,250 had bicycles and radios, 4,800 had tape players and 1,100 had all three. Have the student begin with 1,100 in the intersection of all three sets and find the numbers of students in all seven regions.

**A Follow-up Activity:**
Have the students conduct appropriate surveys within their group and complete the Venn diagram from the activity.

Answer Key



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